# SOLID LIQUID WASTE MANAGEMENT SUB- PLAN

{QRCODE}

| Rev. | Date | Issuing Description | Prepared | Checked | Approved |
|---|---|---|---|---|---|
| 1 | 14-09-2023 | ISSUED FOR USE | | | |

## REVISION CONTROL SHEET

| Revision No | Date | Revision Details |
|---|---|---|
| 1 | 14-09-2023 | ISSUED FOR USE |
| 0 | 10-07-2023 | ISSUED FOR APPROVAL |

# Table of Contents

# 1 INTRODUCTION

## 1.1 Project Details

Perdaman Chemicals and Fertilisers Pty Ltd (Owner) are focused on the development of Project CERES, which shall be the world's largest gas stream ammonia-urea plant with a production capacity of 2.14 MMTPA. The plant is located within the Burrup Strategic Industrial Area, Burrup Peninsula, approximately 10 km from Dampier and 20 km north-west of Karratha on the Northwest coastline of Western Australia.

The development will utilize local natural gas for fertilizer production, using innovative and low emissions technologies and will be Australia's first urea export project.

The Project is broken into the following key areas:

- Ammonia Production Block
- Urea and Granulation Block
- Utility Block
- Third Party Supply (Port Facilities, Water Supply, and Service Corridor)

Saipem and Clough Joint Venture (CONTRACTOR), have been selected as the exclusive EPC contractor for the development of Perdaman Industries urea plant on the Burrup Peninsula.

# 2 GENERAL INFORMATION

## 2.1 Scope of the Document

The Projects Solid Liquid Waste Management Sub-Plan (SLWMsP) has been prepared by the Saipem Clough Joint Venture (SCJV) (CONTRACTOR) by integrating the OWNER Solid Liquid Waste Management Plan (PCF-PD-EN-SLWMP) and the management controls specific to the CONTRACTOR construction methodology that will be applied by the CONTRACTOR and its sub-contractors during the construction program relating to Project CERES.

The SLWMsP describes the Scope of Work, addresses all requirements related to management of solid and liquid wastes within the Project site, and establishes the strategies, methods, processes which will be adopted by the CONTRACTOR to provide certainties in delivering successful execution of the project while ensuring that waste does not adversely impact the surrounding sensitive receivers.

The Solid Liquid Waste Management Sub-Plan presents detail to:

`

- Integrate any environmental approval conditions, commitments or requirements relating to waste management and construction activities into the management and monitoring responsibilities during construction.
- Ensure waste management during the construction period is in accordance with the overarching OWNER Solid Liquid Waste Management Plan and the Project Environmental Management Plan.

Environmental management requirements for the control, containment, treatment, and disposal of solid & liquid waste of the kinds described in Section 7 of this Plan. Included is a series of specific management strategies that will be applied across the construction phase of the Project. This SLWMsP should be read and implemented in conjunction with the OWNER Solid Liquid Waste Management Plan (PCF-PD-EN-SLWMP) and the Confirmed Surface Water Management Plan (PCF-PD-EN-SWMP) and the CONTRACTOR Construction Environmental Management Plan it forms an attachment to. It does not replace the OWNER plans; its main purpose is to provide the construction team with clear responsibilities and actions under these plans during the construction program.

This plan is prepared and maintained by the CONTRACTOR Environmental Team or designated delegate. It is a “live” Plan and as such may be reviewed periodically and revised as needed.

## 2.2 Project Details

Perdaman Chemicals and Fertilisers Pty Ltd (OWNER) are focused on the development of the world’s largest gas stream ammonia-urea plant, called Project CERES with a nominal daily production capacity of 6,200 tons, equating to 2.140 million tons per annum at Sites C and F in the Burrup Strategic Industrial Area in Western Australia.

The plant will be located approximately 10km from Dampier and 20km North-West of Karratha on the North-West coastline of Western Australia.
The development will utilize local natural gas for fertilizer production, using innovative and low emissions technologies and will be Australia’s first urea export project.

Saipem and Clough Joint Venture (CONTRACTOR), have been selected as the exclusive EPC contractor for the development of Project CERES.

**Figure 2-1 Location Map**

## 2.3 Plant overview

The Plant areas include Site C, Site F, the causeway, conveyor, and Port storage and loading Facilities. Figure (4.1) Project site areas below illustrates the project site areas.

Site C is relatively undeveloped except for some access roads. The site is situated adjacent to the Yara Ammonia Plant to its East, to the North are steep rocky outcrops and to the South the saline coastal flat area. Drainage from the site flows in a southerly direction towards the saline coastal flat between Hearson Cove and King Bay.

Once developed Site C will include the main process plant, associated infrastructure and a 75,000-tonne urea storage shed.


**Figure 2-2 Project Site Areas**

Site F is situated to the South of Site C, on the opposite side of the saline coastal flat. It includes Hearson Cove Road and a significant proportion of previously disturbed area. Drainage from this area flows primarily North into the saline coastal flat.

During the construction phase of the Project, this area will be used as laydown for equipment and modules. The East portion of Site F will be developed to include the Perdaman Urea Plant's administration, maintenance, storage and warehousing facilities.

The causeway, which links Sites C and F, extends across the saline coastal flat. The causeway will be built above the flat with regular culverts to ensure the structure does not impede natural drainage or tidal action, whilst providing continuous access between Sites C and F.

The 3.2km conveyor will transport urea from the storage shed at Site C to the Port loading shed. From Site C the conveyor will be constructed on relatively undisturbed land, to the West of the existing Water Corp pipeline corridor. It will extend North, connecting to the existing Burrup East West Services Corridor (EWSC).

The EWSC is a bitumen sealed corridor that already includes the Yara Pilbara Fertilizer's ammonia pipeline which extends to the bulk liquids jetty adjacent to the Project's Port facilities. The Project's conveyor will be positioned within this corridor and where possible use existing culverts to avoid roads and other infrastructure. Where the conveyor crosses Woodside's Haul Road the road will be built up to allow the conveyor to pass under.

The Port Area includes a 75,000-tonne storage shed, conveyor and ship loader. The storage shed will be located within an existing quarry and the ship loader on a wharf which will be constructed by others engaged by Pilbara Port Authority (PPA). The Conveyor will be situated on cleared area associated with the new wharf and quarry, and a 0.2-hectare section of undisturbed rocky ground between these two areas.

## 2.4 OWNER Information

Perdaman Chemicals and Fertilizers Pty Ltd., ABN 31121263 741of Level 17, 58 Mounts Bay Road, Perth, Western Australia.

Perdaman is a multinational group based in Western Australia with a long-standing track record in involvement within a diverse range of markets. Perdaman Industries (Chemicals & Fertilizers division) has current focus on the production of urea, the most commonly traded nitrogenous fertilizer.

The plant named as Project CERES will be located at Karratha, Western Australia. The planned capacity of the Urea plant is two million ton per annum with most of the urea produced by the plant will be exported.

## 2.5 Scope & Context

This Solid Liquid Waste Management Plan (SLWMP) has been developed as a sub-plan to supplement the CONTRACTOR Construction Environmental Management Plan and align with the following OWNER Confirmed Management Plans:

- *Perdaman Solid Liquid Waste Management Plan - (PCF-PD-EN-SLWMP)*
- *Confirmed Surface Water Management Plan – (PCF-PD-EN-SWMP)*
- *Acid Sulfate Soils Management Plan (PCF-PD-EN-ASSMP)*

Waste has been identified as a significant risk to the Project, during the construction phase. Construction waste sources have been identified as several likely streams both solid and liquids. To minimise and manage the creation of solid and liquid wastes, this Solid Liquid Waste Management Sub-Plan has been prepared for the Project.

The waste minimisation procedures in the Plan will be designed around the waste hierarchy in order of preference, that is Waste Avoidance (most preferred); Reduction; Reuse; Recycling: Disposal (least preferred).

## 2.6 Environmental Setting & Value

### 2.6.1 Inland Waters

The inland water values (surface water and groundwater) are summarised in the CONTRACTOR CEMP (0000-ZA-E-09071), and the potential impacts to these values by construction activities have been summarised in the CEMP (0000-ZA-E-09071).

There are no permanent surface water bodies (including wetlands) located within the development envelope. Surface water flow occurs along ephemeral creek lines mainly during significant rainfall events. During periods of heavy rain and extreme spring tides, the supratidal flats between sites C and F are subject to inundation (Environmental Review Document, Cardno, March 2020). For a more detailed summary of survey and study findings related to surface water refer to the Confirmed Surface Water Management Plan (PCF-PD-EN-SWMP). Tetra Tech Coffey (2022) identified two hydrostratigraphic units beneath the site consisting of a low yielding granophyre bedrock aquifer overlain by a shallow superficial aquifer consisting of a variety of deposits including clays, gravels and calcrete. Both units are unconfined and hydraulically connected. Groundwater flow is to the southwest in Site C and to the northwest on Site F, with discharge to the supratidal area and eventually into King Bay to the west. Groundwater is influenced by tidal variations, and it is likely that flow direction is altered during periods of high tides. The depth to groundwater varies between 0.41 mBTOC and 21.61 mBTOC with surface waters being an expression of groundwater in the supratidal area during periods of groundwater in the supratidal area during periods of high rainfall and following tidal inundation.

### 2.6.2 Terrestrial Fauna

There are 99 conservation significant terrestrial fauna species identified with the potential to occur in the project area, with 28 species (26 migratory / marine bird species and 2 bat species) recorded during the surveys undertaken by Animal Plant Mineral (APM) in 2019 (see the Confirmed FaMP (PCF-PD-EN-FaMP) for the survey findings).

The two bat species identified in surveys are the ghost bat (Macroderma gigas), a threatened fauna species listed as Vulnerable under both the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and the Biodiversity Conservation Act 2016 (BC Act), and the North-Western Free-Tailed Bat (Ozimops cobourgianus) is listed as a Priority 1 species under the BC Act (Cardno 2020).

The northern quoll (Dasyurus hallucatus) and the Pilbara Olive Python (Liasis olivaceus barroni), which are threatened fauna species listed as Vulnerable and Endangered respectively under the EPBC Act, were not recorded during the fauna surveys despite having the potential to occur in the region (Cardno 2020). Due to the potential for these critical species to occur on site, precautionary measures relating to their management have been required for the project.

Excessive waste polluting the surrounding terrestrial environment has the potential to impact native fauna species by increasing pest species and predation.

### 2.6.3 Fauna Habitat

There are four main fauna habitats within the development envelope that host conservation significant species: Rocky Outcrops, Hummock Grasslands on Mid-slopes, Samphire Shrublands / Saltplains, and Drainage Lines (Cardno 2020).

Improper solid and liquid waste management has the potential to litter and pollute the native habitats available to fauna if not managed appropriately.

### 2.6.4 Marine Environment

The Project area is connected via intertidal and supratidal flats that drain toward the marine environment. Surface water from the site flows in a southerly direction towards the supra-tidal flat between Hearson Cove and King Bay. King Bay supports various mangrove species, which help prevent erosion and provide food and habitat for insects, fish and crustaceans.

Six species of marine turtle occur in the Dampier Archipelago, although no significant rookeries or potential nesting habitat near site gives reason to expect little impacts towards protected turtle species. However, improper waste management may impact the marine environment through pollution and litter, which indirectly impacts marine turtles and other marine species including whales and dolphins.

Nutrient loading caused by wastewater and solid wastes entering the marine environment could impact marine biota and water quality.

### 2.6.5 Social Surrounds

Murujuga is the traditional Aboriginal name for the Dampier Archipelago and surrounds, including the Burrup Peninsula and Murujuga National Park. Murujuga has been listed on Australia's National Heritage List under the Dampier Archipelago (including Burrup Peninsula) by the Australian Government since 2007 (refer to Figure 2-1 of the CEMP). Portions of the National Heritage Listing Area forms the Murujuga National Park (EPA Report, 2021).

Murujuga has numerous important values including more than one million petroglyphs in an area of more than 37,000 ha, representing one of the most dense and diverse collections of petroglyphs in the world. In addition, the Dampier Archipelago comprises 42 islands, islets and rocks, all within a 45 km radius of Dampier having exceptional natural beauty, high conservation values and outstanding heritage.

The cultural heritage values identified that are potentially impacted by the CONTRACTOR waste generation and improper management are as follows:

- Three Aboriginal heritage sites located in Site C (Site IDs 18615, 19239, and 19874).
- Deep Gorge (now known as Ngajarli), which is located about 1.5 km east of Site F and includes rock art, a boardwalk and interpretive signage to educate visitors about its cultural significance to the Traditional Owners.
- The Fish Thalu Aboriginal heritage site situated in the King Bay / Hearson Cove supratidal to intertidal flat area to the north-east of Site F is located outside the project's development envelope, however due to its proximity has still been considered as part of the cultural significance of the area.
- Yatha Site, which is the bough structure constructed and used by MAC members for cultural inductions and by traditional custodians when on-country, it lies in the south-western corner of Site F.
- Eight recorded Aboriginal Heritage Sites are located adjacent to the development envelope.

Improper waste management has the potential to impact the culturally significant sites, by littering and polluting these environments.

### 2.6.6 Plan Review

This Plan can be reviewed and updated independently of the CEMP (0000-ZA-E-09071) and should be treated as an Attachment to the CEMP (0000-ZA-E-09071), particularly where there are changes to the construction methodology affecting solid and liquid waste aspects, and if there are changes to management or monitoring required incidents or complaints occur.

Any revision of this Sub-Plan will be submitted to the OWNER for review and approval. The OWNER Environmental Representative may direct the CONTRACTOR to further amend the Sub-Plan where necessary.

### 2.6.7 Responsibility

The mitigation measures presented in section 7 below are the responsibility of the CONTRACTOR and their sub-contractors to carry out and implement during Project construction, unless otherwise indicated within the specific control or measure. Further details on the CONTRACTOR role specific authorities and responsibilities can be sighted in the CEMP (0000-ZA-E-09071). Appendix D of the CEMP (0000-ZA-E-09071) includes Project Organisation Charts.

Any Sub-Contractor engaged to carry out works on behalf of the CONTRACTOR during the construction works must comply with the CEMP (0000-ZA-E-09071) and the management measures stated within this Plan.

In certain circumstances a sub-contractor working under the CONTRACTOR will be primarily responsible for the implementation of management measures, as indicated per the work packages they will be executing on the Project and will be doing so under the CONTRACTOR authority and oversight.

Any sub-contractor carrying out works on behalf of the CONTRACTOR will be required to complete the applicable inductions and training as well as participate in pre-starts and toolbox talks (refer to the CEMP) as well as applicable risk analysis for work activities. Responsibilities of sub-contractors are further detailed within the CEMP. The CONTRACTOR will monitor environmental performance of the sub-contractors against the implementation of applicable management measures during environmental inspections and during subcontractor audits (refer to the CEMP).

Where a conditional requirement or a management measure is the responsibility of the OWNER, the measure or conditional requirement (MS No. 1180) will state this.

It is important to note, that overall accountability lies with the OWNER for ensuring the conditions of the EPBC 2018/8383 Approval and MS 1180 are met throughout the Project phases, including construction. The CONTRACTOR are responsible for carrying out certain management and controls to ensure compliance with these approvals. The OWNER are accountable for reporting to regulatory bodies and consulting with MAC during the construction phase. The OWNER will likely the CONTRACTOR as their official delegate for certain consultation actions with MAC. The CONTRACTOR must ensure reporting of data and information is provided to the OWNER to ensure reporting can be carried out within the

applicable timeframes. Subcontractors must provide all relevant information and data requested by the CONTRACTOR to the CONTRACTOR's Environmental Lead within the specified timeframe to ensure regulatory reporting, incident investigations and corrective actions can be implemented.

## 2.7 Abbreviations And Definitions

| DEFINITIONS | |
|---|---|
| PROJECT | PROJECT CERES (Plant to be supplied, erected and commissioned by CONTRACTOR under the CONTRACT). |
| OWNER | PERDAMAN CHEMICALS AND FERTILIZERS PTY LTD. |
| CONTRACT | Contract agreement entered between OWNER and CONTRACTOR. |
| CONTRACTOR | SAIPEM CLOUGH JOINT VENTURE |
| LICENSOR | HALDOR TOPSOE for AMMONIA, SAIPEM for UREA, THYSSENKRUP for GRANULATION |
| VENDOR | Entity that provides equipment and related services part of the WORK according to purchase order |
| CONFIRMED MANAGEMENT PLAN | A Plan that is required under the MS 1180 or EPBC 2018/8383. The Confirmed Plans are Perdaman managed Plans. It is the SCJV responsibility to implement actions relative to construction only. Triggers and thresholds from a confirmed plan, must also be applied by the SCJV during construction. Monitoring within these plans that is to be carried out during construction may also be SCJV responsibility where it is indicated. These Plans are approved by state and federal regulators, and Ground Disturbance is not permitted without these Plans being approved by the CEO of DWER. |
| CONTRACTOR ENVIRONMENTAL LEAD | Includes the Environmental Representative and Lead for the CONTRACTOR team, who are responsible for carrying out the responsibilities as they relate to the CONTRACTOR. |
| CONTRACTOR ENVIRONMENTAL ADVISOR | Includes the Environmental Advisor/s for the CONTRACTOR team, who are responsible for carrying out the responsibilities as they relate to the CONTRACTOR and as directed by the Environmental Lead and or the HSSE Deputy. |
| CONTROLLED WASTE | Waste types listed in Schedule 1 of the Environmental Protection (Controlled Waste) Regulations 2004. Controlled wastes include many hazardous wastes and are generally defined as all liquid waste, and any waste that cannot be disposed at a Class I, II or III landfill site. |
| ENVIRONMENTAL PROTOCOL | An Environmental Protocol is a management strategy that contains mitigation measures and controls from Perdaman, SCJV and Pilbara Port Authority. Protocols help guide the construction team with construction works by providing minimum environmental |

| | |
|---|---|
| | requirements or commitments that must be applied during construction. |
| OWNER ENVIRONMENTAL REPRESENTATIVE | The Environmental Representative includes Perdaman's ENVIRONMENT AND HERITAGE MANAGER, the ENVIRONMENTAL COORDINATOR, or their delegated representative. |
| OWNER ENVIRONMENT AND HERITAGE MANAGER | The ENVIRONMENT AND HERITAGE MANAGER is Perdaman's site based Environmental Representative who has the authority and responsibility for managing the implementation, compliance, and effectiveness of the Project's environmental and heritage requirements. |
| PROJECT PERSONNEL | PROJECT PERSONNEL include all persons working on the Project directly employed by PERDAMAN, or its CONTRACTORS. |
| GROUND DISTURBANCE PERMIT | A GROUND DISTURBANCE PERMIT (GDP) is a permit issued to a SUBCONTRACTOR, by the CONTRACTOR, enabling Works within defined battery limits to manage any impacts on native vegetation, heritage, or other environmentally sensitive values. It includes the key approval commitments and obligations obtained by or issued to the CONTRACTOR or the OWNER by regulators, tenure holders and other third parties. |
| HAZARDOUS WASTE | Component of the waste stream which by its characteristics poses a threat or risk to public health, safety or the environment. Hazardous wastes are generally unsuitable for landfill disposal and would only be accepted after appropriate treatment and/or in accordance with specific license conditions. |
| NO-GO ZONES | NO-GO ZONES are defined areas within the Project's footprint which ARE NOT ENTERED AND OR DISTURBED by Project activities. These areas are established to protect environmental, cultural heritage, infrastructure and other values from damage or other detrimental impacts. |
| PROJECT WORK SITES | The Project work sites include Area C, Area F, the causeway linking these two areas, the conveyor corridor to the Port and the Port storage and loading infrastructure. It can also include any other Project relevant location under operational control of Perdaman. |
| WORKS | All work which the CONTRACTOR and or its SUBCONTRACTORS are required to perform to comply with its obligations under the CONTRACT. |
| MAY | Indicates that the Subcontractor is permitted to do something, or the CONTRACTOR reserves the right to do something according to the text. |
| MUST | Indicates a requirement or action that must be followed to comply with legal framework for the Project and environmental approval conditions. |

| | |
|---|---|
| PUTRESCRIBLE WASTE | Component of the waste stream likely to become putrid – including wastes that contain organic materials such as food wastes or wastes of animal or vegetable origin, which readily biodegrade within the environment. |
| SEWAGE | Waste containing faecal matter or urine. An "apparatus for the treatment of sewage" means any apparatus for the bacteriolytic or anaerobic/aerobic treatment of sewage or any other apparatus for the treatment of sewage approved under the Health Act 1911. |
| SHALL | Indicates that a statement is mandatory. |
| SHOULD | Indicates a recommendation. |
| WASTEWATER | Industrial wastewater includes contaminated stormwater, cooling water, process water and wash-down waters. |
| WILL | Indicates a requirement or action that the OWNER or the CONTRACTOR will be implementing during the Project activities to ensure compliance with legal framework for the Project and environmental approval conditions. |
| **ABBREVIATIONS** | |
| AHD | Australian Height Datum |
| ANZECC | Australian and New Zealand Environment Conservation Council |
| ARI | Average Recurrence Interval |
| ASS | Acid Sulphate Soils |
| BSIA | Burrup Strategic Industrial Area |
| CEO | Chief Executive Officer |
| COPC | Contaminants of Potential Concern |
| DBLB | Dampier Bulk Liquids Berth |
| DMIRS | Department of Mines, Industry Regulation and Safety |
| DWER | Department of Water and Environmental Regulation |
| EPA | Environmental Protection Authority |
| EPC | Engineering, Procurement and Construction |
| ERD | Environmental Review Document |
| ESCP | Erosion and Sediment Control Plan |
| ESWMP | Erosion and Surface Water Management Protocols |
| EWSC | East West Services Corridor |
| FEED | Front End Engineering and Design |
| GDA | Ground Disturbing Activities |
| GDP | Ground Disturbance Permit |
| mBTOC | Meters Below Top of Casing |

| | |
|---|---|
| mBGL | Meters Below Ground Level |
| MRWA | Main Roads Western Australia |
| Mtpa | Million tonnes per annum |
| MUBRL | Multi-User Brine Return Line |
| PASS | Potential Acid Sulfate Soils |
| PEMP | Project Environmental Management Plan |
| PFAS | Perfluoroalkyl and Polyfluoroalkyl Substances |
| PPA | Pilbara Ports Authority |
| PPM | Parts per million |
| SCJV | Saipem Clough Joint Venture |
| SWMP | Surface Water Management Plan |
| TDS | Total Dissolved Solids |
| TPH | Total Petroleum Hydrocarbons |
| TRH | Total Recoverable Hydrocarbons |
| WQPN | Water Quality Protection Note |

## 2.8 References

| In text citation | Document Title |
|---|---|
| ASSDMP | Acid Sulfate Soils and Dewatering Management Protocol (0000-ZA-E-09071). |
| CEMP | Construction Environmental Management Plan (0000-ZA-E-09071) |
| Coffey 2022a | Perdaman Urea Project – Project Destiny: Baseline Hydrogeological Assessment. |
| Coffey 2022b | Perdaman Urea Project – Project Destiny: Detailed Site Assessment for Acid Sulfate Soil |
| DWER-053a | ASS Risk Map, Pilbara Coastline |
| ESD | Perdaman Urea Project – Environmental Scoping Document |
| HHSMP | Hydrocarbons and Hazardous Substances Management Protocol (0000-ZA-E-09071). |
| PEMP | Project Environmental Management Plan (PCF-PD-EN-PEMP) |
| SNC-Lavalin 2019 | Perdaman Urea Project – Project Destiny: Geotechnical Desktop Study. |
| SWMP | Surface Water Management Plan (PCF-PD-EN-SWMP_PCF3) |

| | |
|---|---|
| S&LWMP | Solid and Liquid Waste Management Protocol (0000-ZA-E-09071). |
| WQESC | Water Quality, Erosion and Sediment Control Construction Management Sub-Plan (0000-ZA-E-09071) |

### 2.9 Key Plans & Procedures

Following are the list of key plan documents serving as a guidelines for respective heritage and environmental domains.

**Plans & Procedure Interface**

| Document No. | Document Title |
|---|---|
| 0000-ZA-E-09071 | Construction Environmental Management Plan |
| 0000-ZA-E-09700 | Health, Safety, Security & Environment Management Plan |
| 0000-ZA-E-09020 | Engineering Execution Plan |
| 0000-ZA-E-09013 | Project Risk Management Plan |
| 0000-ZA-E-02860 | Ground Disturbance Plan |
| PCF-PD-EN-SLWMP | Solid Liquid Waste Management Plan |
| PCF-PD-EN-SWMP | Confirmed Surface Water Management Plan |
| PCF-PD-EN-ASSMP | Acid Sulfate Soils Management Plan |

## 3 ENVIRONMENTAL APPROVALS

### 3.1 Environmental Protection Act 1986- Part IV Approvals

The Government of Western Australia's Environment Protection Authority (EPA) assesses significant and strategic proposals under Part IV Division 1 of the Environmental Protection Act 1986 (EP Act) and granted Perdaman (OWNER) approval to implement the Project through Ministerial Statement 1180 (MS 1180).

The CONTRACTOR has identified the relevant factors (listed below) which relate to solid liquid waste management and the CONTRACTOR construction methodologies. These are detailed in section 7 of this plan.

The MS 1180 specifies certain requirements, either directly relating to waste or indirectly, these are listed in table 3-1 below:

**Table 3-1 MS 1180 Waste Obligations**

| Impact | Condition | Description |
|---|---|---|

| | | |
|---|---|---|
| Direct | 1 | 20 GL/yr. (including excess treated wastewater) discharged into the existing Water Corporation Multi-User Brine Return Line. |
| Indirect | 6-1 | Minimise project attributable impacts on **groundwater quality**, flow direction and/or depth to maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected. |
| Indirect | 8-1 | To maintain the hydrological regimes and **quality** of surface water so that environmental values are protected. |
| Indirect | 7-2 | In the event that acid sulfate soils are disturbed during the implementation of the proposal, the proponent shall treat and manage acid sulfate soils in accordance with the requirements of the *Department of Water and Environmental Regulation's guideline on the Treatment and management of soil and water in acid sulfate soil landscapes (DER, 2015).* |

### 3.2 Environmental Protection Act 1986 – Part V

The Government of Western Australia's Department of Water and Environmental Regulation (DWER) regulates industrial emissions and discharges to the environment through a works approval and licensing process, under Part V, Division 3 of the EP Act. Industrial premises with potential to cause emissions and discharges to air, land or water are known as prescribed premises and trigger regulation under the EP Act. Prescribed premises categories are outlined in Schedule 1 of the Regulations.

The Project requires a Works Approval for the construction, commissioning, and time limited operation of infrastructure for:

- Category 12 prescribed premises, screening etc. of material: premises (other than premises within category 5 or 8) on which material extracted from the ground is screened, washed, crushed, ground, milled, sized or separated.
- Category 31 prescribed premises, chemical manufacturing: premises (other than premises within category 32) on which chemical products are manufactured by a chemical process.
- Category 52 prescribed premises, electric power generation: premises (other than premises within category 53 or an emergency or standby power generating plant) on which electrical power is generated using a fuel.
- Category 58 prescribed premises, bulk material loading or unloading: premises on which clinker, coal, ore, ore concentrate, or any other bulk granular material (other than salt) is loaded onto or unloaded from vessels by an open materials loading system.
- Category 73 prescribed premises, bulk storage of chemicals etc.: premises on which acids, alkalis, or chemicals that —

a) contain at least one carbon to carbon bond; and

b) are liquid at STP (standard temperature and pressure),

c) are stored.

- Category 85 prescribed premises, sewage facility: premises —

d) on which sewage is treated (excluding septic tanks); or

e) from which treated sewage is discharged onto land or into waters.

At the time of preparation of this Sub-Plan, the OWNER has been granted a Works Approval for Category 12 works (W6630/2021/1).

The requirement relating the protection of the environment in regard to waste management are specified in Condition 1 (W6630/2021/1) (Table 1) and are listed in Table 3-2 below:

**Table 3-2 Part V Approval Conditions**

| Approval | Condition Commitment Reference | Condition / Commitment |
|---|---|---|
| W6630/2021/1 (Cat 12) | Table 1: Design & Construction /Installation requirements. | Earthen bund around the premises boundary to prevent surface water run-off from the crushing and screening plant and associated processed material stockpiles being discharged from the premises. |
| | Decision Report – Proponent proposed controls. | Chemicals, oily or contaminated products that are no longer required will be removed from site by licensed controlled waste contractor.<br>Hazardous waste materials and dangerous goods will be disposed of in accordance with the relevant legislation at approved and certified facilities. |

Any requirements will be included within the approval conditions associated with each works approval and license once granted. A list of statutory approvals relevant to solid and liquid waste management are included are listed above. A detailed approval register will be maintained by the OWNER and the CONTRACTOR to monitor the implementation and progress of conditions, and the achievement, renewal and surrender of all licenses throughout the life of the Project and track the Projects performance against the conditions.

### 3.3 Environmental Protection and Biodiversity Conservation Act 1999 - EPBC 2018/8383

The Project is a "Controlled Action" under section 75 of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) with the relevant controlling provisions being

National Heritage values of a National heritage places, Listed Threatened Species and Communities, Listed migratory species and Commonwealth marine species. The Department of Agriculture, Water and the Environment (now referred to as the Department of Climate Change, Energy, the Environment and Water [DCCEEW]) granted the OWNER approval under sections 130(1) and 133(1) of the EPBC Act to construct and operate the Project through approval number 2018-8383.

To minimise impacts on the National Heritage listed – Dampier Archipelago (Burrup Peninsula), approval 2018-8383 Condition 4(b) requires that the OWNER must ensure there are no direct and indirect impacts to the Fish Thalu Aboriginal Heritage Site from changes in tidal water flow movements within the King Bay / Hearson Cove supratidal to intertidal flat area due to the development and use of the causeway.

Overall accountability lies with the OWNER for ensuring the conditions of the EPBC 2018/8383 Approval are complied with throughout the Project phases, including construction. The CONTRACTOR are responsible for carrying out certain management and controls to ensure compliance.

### 3.4 Agreement with Water Corporation to use the MUBRL

The Water Corporation holds Ministerial Statement 594 issued under the EP Act for the supply of seawater and the discharge of a combined brine and wastewater stream to King Bay. The MUBRL was approved to provide a seawater supply system with a capacity of approximately 280ML/d; provide a brine discharge into King Bay with capacity of 208ML/d; to accept treated industrial and domestic wastewater into brine discharge stream from facilities with environmental approval; and to construct and operate desalination plants on the Yara Fertilisers lease and potentially other sites.

The existing discharge to MUBRL (mainly from Yara) is less than 57ML/d, and the Project will add ~55ML/d to the facility discharge as a continuous stream aligned to operational throughput. In aggregate, these combined user inputs are well below the approved discharge capacity for the facility (208ML/d) but may require work to augment installed capital equipment to accommodate this increase. If additional statutory and government approvals are required for this augmentation, as per letter dated 25 Feb 2019 (Appendix J of the ERD), Water Corporation as the facility provider and current approval holder has responsibility for such (see Appendix J of the ERD), by letter of 29 January 2020 Water Corporation (Appendix J of the ERD) confirms MUBRL's ability to accept the Projects saline water disposal quantity once the Project is approved.

The saline water disposal system basis of design will ensure that treated saline water will comply with, or be better than, the Water Corporation Ministerial conditions (refer to the Ministerial Statement 594) which are reflected in the Water Corporation Technical Compliance Advice Bulletin Ref. PM20992155 (22 Feb 2019).

These are reflected in Table 7-4 and also require the stipulated ANZECC 2000 99% species protection criteria for toxicants on entry into the brine discharge system. Excess salts would be crystallised and sent to a suitable solid waste disposal. Site domestic wastewater and stormwater will be recovered, treated and re-used to the extent practicable.

As noted, the Project discharge to the MUBRL will comply with, or be better than, the Ministerial Condition requirements. Therefore, when the Project's compliant saline water discharge is mixed in the MUBRL with existing brine already in the MUBRL that also meet these requirements, the overall combined output to the marine environment from the MUBRL would be compliant with the existing applicable MUBRL approval standards for averaged quality, total quantity and therefore loading in the marine environment on discharge.

### 3.5 Regulatory Obligations

Legislation relevant to SLWMP on the Project includes, but is not limited to:

- *Environmental Protection Act 1986*
- *Environmental Protection Regulations 1987*
- *Environmental Protection (Controlled Waste) Regulations 2004*
- *Environmental Protection NEPM UPM) Regulations 2003*
- *Environment Protection and Biodiversity Conservation Act 1999 (Cwth)*
- *Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007*
- *Environmental Protection (Concrete Batching and Cement Product Manufacturing) Regulations 2004*
- *Environmental Protection (Unauthorised Discharge) Regulations 2004*
- *Litter act 1979*
- *Health Act 1911*
- *Health (Treatment of sewage and Disposal of Effluent and Liquid Waste) Regulations 1974*
- *Planning and Development (Local Planning Schemes) Regulations 2015*

In addition to the above legislation, this plan will be developed and regularly reviewed to comply with the commitments and legal obligations arising from the Project's environmental approvals process. Review process for this SLWMP is discussed in Section 2.6.6 of this Plan.

### 3.6 Technical Guidelines

Technical guidelines used for the preparation of this Sub-Plan include:

| Document Number | Document Title |
|---|---|
| AGBT08-19 | *Austroads Waterway Design Guidelines and Australian Standards.*<br>*Guide to Bridge Technology Part 8: Hydraulic Design of Waterway Structures.* |
| AGRD05-13 | *Austroads Waterway Design Guidelines and Australian Standards.*<br>*Guide to Road Design Part 5: Drainage-General and Hydrology Considerations* |
| ARR 2019 | *Australian Rainfall and Runoff: A Guide to Flood Estimation (Ball J et al, 2019)* |

| Document Number | Document Title |
|---|---|
| AS 1319 | *Safety Signs for the Occupational Environment - Western Australia* |
| AS 1940:2004 | *The storage and handling of flammable and combustible liquids.* |
| AS/NZS 2031 | *Australian Standard 2031 - Water quality - Sampling for microbiological analysis (ISO 19458:2006, MOD)* |
| AS/NZS 5667 | *Australian Standard 5667 - Water quality - Sampling Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples (Reconfirmed 2016)* |
| Controlled waste fact sheet 2 | *Guideline for Controlled Waste Generators - Requirements of waste holders* |
| Controlled waste fact sheet 3 | *Guideline for Controlled Waste Generators - Controlled waste tracking* |
| DER2015001427 | *Identification and investigation of acid sulfate soils and acidic landscapes (DER 2015).* |
| DER2015001427 | *Treatment and management of soils and water in acid sulfate soil landscapes (DER 2015).* |
| DWER 2017, 3rd Edition | *Stormwater management manual for Western Australia, Chapter 4: Integrating stormwater management approaches, Decision process for stormwater management in WA (the former Department of Water 2004–07)* |
| FIRST 115848 | *Waste Categorization for Controlled Waste Guideline (DWER 2020)* |
| CORP-HSE-PR-G-0066 | *HSSE Incident Notification, Investigation and Reporting Procedure* |
| CORP-HSE-FO-G-0036 | *HSSE Risk Matrix* |
| MS 567 | *Ministerial Statement No. 567 – Statement that a Proposal May be Implemented – Desalinated Water and Seawater Supplies Project, Burrup Peninsula, Shire of Roebourne* |
| MS 594 | *Ministerial Statement No. 567 – Statement to Amend Conditions Applying to a Proposal - Desalinated Water and Seawater Supplies Project, Burrup Peninsula, Shire of Roebourne* |
| MS 1180 | *Ministerial Statement No. 1180 – Statement that a Proposal May be Implemented – Perdaman Urea Project* |
| WQPN 28 | *Mechanical Servicing and Workshops.* |
| WQPN 52 | *Stormwater management at industrial sites.* |
| WQPN 68 | *Mechanical Equipment Wash-down.* |

## 4 KEY ENVIRONMENTAL FACTORS

The EPA identified the Key environmental factors to be preserved for the Project as including Flora & Vegetation, Terrestrial Fauna, Inland Waters, Air Quality, Greenhouse Gas Emissions, Coastal Processes, Social Surroundings and Marine Environmental Quality. This Plan addresses the Inland Waters key environmental factor.

The key environmental factors and objectives linked to solid liquid waste management on the Project have been identified and outlined in Table 4-1.

**Table 4-1 Key Environmental Factor & Objective**

| Key Environmental Factor | Objective |
|---|---|
| ***Inland Waters*** | To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected. |
| ***Flora and Vegetation*** | "To protect flora and vegetation so that biological diversity and ecological integrity are maintained." |
| ***Terrestrial Fauna*** | "To protect terrestrial fauna so that biological diversity and ecological integrity are maintained." |
| ***Coastal Processes*** | "To maintain geophysical processes that shape coastal morphology so that the environmental values of the coast are protected." |
| ***Marine Environmental Quality*** | "To maintain the quality of water, sediment and biota so that environmental values are protected." |
| ***Marine Fauna*** | "To protect marine fauna so that biological diversity and ecological integrity are maintained." |
| ***Social Surrounds*** | "To protect social surroundings from significant harm." |

### 4.1 Environmental Objectives

The Minister for the Environment suggests reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment to achieve objectives and comply with legislation relating to protection of environmental values (EP Act 1986).

The objectives that the CONTRACTOR have set for the construction program waste management is to:

- Minimise generation of solid and liquid wastes and maximise opportunities through early identification to reuse or recycle material in preference to disposal.
- Ensure liquid wastes are managed in a manner that does not contaminate or pollute the surrounding surface water values and to ensure that surface water quality does not deteriorate as a result of poor waste disposal and management.
- Ensure solid wastes streams are managed in a way that reduces and where possible eliminates the risks of litter and other contaminates entering into nearby heritage sites

(cultural values), Murujuga National Park, other social surroundings, nearby surface water, fauna habitats and the marine environment.

- Manage waste appropriately onsite to minimise and where possible eliminate the attraction of feral species and pests into the construction areas as a direct result of improper waste management and disposal.

## 5 POTENTIAL IMPACTS

Table 5-1 provides and overview of construction activities and the potential impacts of improper waste management to the key environmental factors listed in Table 4-1.

**Table 5-1 Potential Impacts**

| Project Activities | Key Environmental Factor | Potential Impact |
|---|---|---|
| Improper storage of solid waste during construction. | Flora & Vegetation<br>Inland Waters and Coastal Processes<br>Terrestrial Fauna | Waste escaping site to surrounding sensitive environmental receivers.<br>Improper storage of wastes attracting native fauna and pest species to site. |
| Excavation and stockpiling of waste soils not suitable for cut and fill or construction activities (i.e., contaminated, ASS etc). | Inland Waters<br>Flora & Vegetation | Run-off from waste soil stockpiles may cause sedimentation and deposition of foreign/introduced/contaminated material into the environment (particularly ASS stockpiles).<br>Elevated levels of suspended solids or contaminants in surface water runoff affecting the health of surrounding vegetation and associated fauna habitat, foraging and food sources. |
| Disposal of chemicals, hazardous materials and wastewater during construction. | Inland Waters and Coastal Processes | Release of chemicals and hazardous materials to the surrounding environment, waterways, nearby drainage systems.<br>Pollution Impacts to the supratidal zones (Hearson Cove and King Bay)<br>Contamination of soils.<br>Potential for spills or leaks to contaminate surrounding soils and impact natural chemistry. |
| Concrete waste from batching plant and wastewater from plant. | Inland Waters and Coastal Processes | Stormwater or wastewater run-off from the concrete batching site have the potential to contaminate the surrounding surface water environment. |

| Project Activities | Key Environmental Factor | Potential Impact |
|---|---|---|
| | | Sediment laden/alkaline water entering surrounding stormwater / drainage onsite and exiting site.<br>Alkaline washout impacting soil chemistry/ groundwater and associated nearby receptors.<br>Fines and penalties associated with Schedule 1 substances being discharged (*Environmental Protection* [Unauthorised Discharges] *Regulations* 2004).<br>Changes to topsoil and subsoil chemistry may hinder rehabilitation survival rates. |
| Wastewater from construction activities (i.e., ablution facilities, maintenance and cleaning of construction equipment, vehicles, dewatered effluent, stormwater effluent/runoff etc). | Inland Waters | Stormwater or wastewater run-off from construction activities and operation activities leaving site with the potential to contaminate the surrounding surface water environments.<br>Sediment laden runoff entering surrounding stormwater / drainage onsite and exiting site.<br>Fines and penalties associated with Schedule 1 substances being discharged (*Environmental Protection* [Unauthorised Discharges] *Regulations* 2004). |

## 6 WASTE TYPES

The Project is expected to generate various types of wastes during the construction stages. The following waste types have been identified by the CONTRACTOR for works being carried out during the construction program:

- Clean Fill.
- Inert Waste.
- Putrescible Waste.
- Hazardous Waste Products and Waste Oils.
- Solid Wastes.
- Concentrated brine solids.
- Intractable Wastes.
- Controlled Wastes.
- Inorganic Chemicals.
- Industrial Wastewater.
- Soils & Sludge.
- ASS.
- Miscellaneous.

- Sewerage & Domestic Waste Organic Waste.
- Effluent Wastewater & condensate.
- Concrete Batching.
- Dewatered Effluent.
- Construction specific wastewater.
- Stormwater & Wastewater during commissioning.
- Plant Sewerage.

Table 7-1 in section 7.3 of this plan has been prepared by the CONTRACTOR for the construction phase. It outlines the various types and streams of wastes, likely to be produced during construction and includes the proposed management strategies for each waste type and any associated monitoring.

# 7 MITIGATION MEASURES

## 7.1 Roles & Responsibilities

The CONTRACTOR CEMP (0000-ZA-E-09071) details the roles, responsibilities, and organisation structure for the construction program.

All personnel undertaking Project activities have the following responsibilities as they relate to waste management and the Project's broader environmental requirements:

- Attending a Project Environmental Induction prior to commencing any work on site.
- Ensuring they are aware of the Project's environmental requirements as stipulated in the most current version of the SLWMP as it relates to construction works the and CONTRACTOR Construction Environmental Management Plan (CEMP) and supporting documents.
- Ensuring they are aware of the CONTACTOR CEMP, confirmed management plans and relevant supporting documentation.
- Reporting any environmental hazards, incidents, near misses and community complaints to their supervisor.

Overall, the OWNER Environment and Heritage Manager will be accountable for implementation of the overarching OWNER SLWMP (PCF-PD-EN-SLWMP), and the CONTRACTOR are responsible for carrying out the requirements of this Sub-Plan as it relates to the construction program.

In addition to these OWNER personnel, contractors engaged by the OWNER will provide adequate, tertiary qualified (in environmental management or similar qualification) and experienced site-based personnel to coordinate the management of environmental issues relevant to their scope of works. Refer to the CONTRACTOR CEMP for Environmental Roles and compliance with the OWNER requirement for adequately qualified personnel.

Subcontractors working under the CONTRACTOR during construction must carry out their responsibilities stated within contract documentation and job descriptions. Refer to the CONTRACTOR CEMP for further information on sub-contractor responsibilities.

### 7.2 General Controls

The following standard management measures will be implemented during construction by the CONTRACTOR:

- Signage will be provided to indicate appropriate segregation of receptacles.
- All waste removed off-site will be recorded in a Waste Management and Tracking Register or equivalent and all records and receipts will be kept.
- Employees and contractors' inductions to outline key aspects of the SLWMP, including waste definitions, recyclables, reuse and disposal.
- Waste management will be in accordance with this plan and the Solid Liquid Waste Management Protocol.

The management measures which will be employed during construction will ensure that the disposal and management of wastes do not adversely affect environmental values or the health, welfare and amenity of people and land uses, by meeting statutory requirements and acceptable standards.

The management measures that will be implemented, namely the stockpiling and storage of wastes, reuse and recycling, management of controlled wastes, and wastewater are outlined below.
Measures will aid the construction team and associated sub-contractors in managing waste streams to ensure the environmental objectives stated within section 4.1 of this Plan can be met during construction.

#### 7.2.1 Procurement Policy & Strategy

To reduce the generation and impact of wastes, the Project will adopt a procurement Policy which applies a proactive decision-making approach to product purchases by considering factors of environmental preferability.
Consequently, where practicable a purchasing preference will be given to products which:

- Are recyclable or contain recycled content.
- Have longer lifespans in terms of performance and durability.
- Are biodegradable and/or non-toxic.
- Have been endorsed as a "Good Environmental Choice" from a whole of product life perspective, via an accredited lifecycle assessment process.
- Are supplied locally where practicable.

The price, quality and availability of alternative product choices shall be utilised as pertinent criteria when assessing the practicability of product choices. Preferred product choices shall be recorded and updated in a 'preferred product' log.

Project staff and contractors shall be trained in this Procurement Policy and the procurement measures detailed in this Plan.

#### 7.2.2 Recycling

In addition to procurement strategies, a large part of the solid waste minimisation process is appropriate diversion of recyclable or re-usable materials from the waste stream.

The Projects general recycling strategy relies on management measures aimed at separating, recycling and/or re-using ‘waste’ materials generated by through construction of the Project.

The first step of effective recycling strategies is to identify recyclable or re-usable materials. The second step is the identification of viable recyclable or re-usable materials will be segregated from the general waste stream. The third step is the induction of employees and contractors will involve training as to which items are to be recycled. The final step, wherever practicable, is to separate general solid waste from recyclable items placed at the initial point of disposal via signage and physical separation of bins.

The Project will endeavour to identify practicable recycling opportunities whenever they exist and commit to becoming involved in any viable regional recycling programs that are initiated.

## 7.3 Waste Types & Associated Management Strategy

**Table 7-1 Waste Management Types and Management Strategies during construction**

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| **Clean Fill** | Clean fill is defined as raw excavated natural material such as clay, gravel, sand, soil or rock fines that has been excavated or removed from the earth in areas that have not been subject to potentially contaminating land uses including industrial, commercial, mining or intensive agricultural activities (DWER, 2019).<br><br>During construction of the Project, clean fill will be generated as part of the cut/fill operations to establish the development footprint to ensure it is suitable for development. | All clean fill generated at the Project will be used on the Project for the purpose of construction. No clean fill will require disposal off-site.<br><br>Clean fill quantities and locations will be tracked through the Project Material Tracking Register / system. | Weekly Environmental Inspections of clean fill segregation (i.e., stockpiles).<br><br>Review and audit of MTS.<br><br>Monitoring as per section 8. |
| **Inert Waste** | Inert wastes are defined as wastes that are largely non-biodegradable, non-flammable and not chemically reactive. | All inert wastes generated at the Project will be segregated and stored on site until removed by a licensed waste handler for off-site disposal. | Monitoring as per section 8. |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| | Inert wastes are subdivided into three separate classes: Inert waste type 1, 2 or 3, depending on contaminant concentrations, biodegradability, flammability or material from a secondary waste treatment plant (DWER, 2019).<br><br>It is anticipated that Inert Waste Type 1 and Inert Waste Type 2 will be generated during construction of the Project:<br><br>**Inert Waste Type 1**:<br>• Rocks/soils arising from the excavation of the previously developed area within Site F.<br>• Construction waste, including concrete and associated unavoidable small quantities of paper, plastics, glass, metal and timber.<br>• Asphalt waste resulting from road construction.<br><br>**Inert Waste Type 2:** | | |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| | • Plastics | | |
| **Putrescible Waste** | Putrescible waste is likely to become putrid – including wastes that contain organic materials such as food wastes or wastes of animal or vegetable origin, which readily bio-degrade within the environment of a landfill (DWER, 2019).<br><br>The Project will generate putrescible waste including food waste, office and packaging waste (paper, cardboard, plastics), drained and mechanically crushed oil filters, and rags and oil absorbent materials (not containing free liquids) from the workshop area, sanitary napkins etc. | To prevent potential health and environmental issues, specific measures for putrescible waste are mainly aimed at:<br>• Hygiene<br>• Containment<br>• Avoidance of the attraction of animals to food scraps<br><br>Upon collection by the local authority or licensed waste management operator/contractor, the putrescible waste will be disposed of at a Waste/Landfill Facility.<br><br>Any putrescible waste produced through construction of the Project will be managed accordingly:<br>• Solid wastes will be stored in a way that does not attract vermin or native fauna.<br>• Bins and skips (with lids) will be labelled and maintained so as to hold the intended waste stream securely.<br>• General putrescible refuse (fitted with secure lids) will be made available for easy access within, office, workshop and plant areas.<br>• Office, workshop, other applicable plant areas and/or the central waste management facility will have designated bins or stockpiles for recyclable or re-useable materials. | Weekly Environmental Inspections.<br><br>Review and audit of incident reports, pest register and complaint register.<br><br>Review of waste register against receipts.<br><br>Monitoring as per section 8. |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| | | • Ensure that facilities used for the receival of waste from the site are appropriately licensed to accept the classified waste type.<br>• Signage will be provided to indicate appropriate segregation of waste bins/receptacles.<br>• Upon collection by a licensed waste handler, the putrescible waste will be disposed of at a landfill facility. | |
| **Hazardous Waste Products & Waste Oils** | Hazardous waste is waste which by its characteristics poses a threat or risk to public health, safety or the environment (includes substances which are toxic, infectious, mutagenic, carcinogenic, teratogenic, explosive, flammable, corrosive, oxidising and radioactive).<br><br>Waste mineral oils unfit for their intended purpose will be generated as part of the operation of the equipment and vehicle maintenance areas and throughout the construction of the urea production plant.<br><br>Mineral oils including lubricating and hydraulic oils, hydrocarbons and | Hydrocarbons and hazardous substances will be managed in accordance with the Hydrocarbons and Hazardous Substances Management Protocol (Appendix of CEMP).<br><br>All hazardous product areas will be bunded and contained in case of spillages. Bunded areas and containment facilities will be designed such that no contamination of the soil and natural groundwater is possible. Drainage systems for hazardous product will be able resist the effects of corrosion and other harmful effects it may be exposed to. All drainage systems containing contaminated / hazardous effluent will be leak proof.<br><br>All removals shall be recorded, and receipts will be kept as per methods in non-hazardous waste controls. Also, Controlled Waste Tracking Forms/Controlled Waste Tracking numbers shall be kept and recorded for the removal of each load of controlled waste. All controlled waste | Monitoring as per section 8. |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| | emulsions, petroleum-based grease, rags and absorbent material wet/saturated with oil, diesel, waste mineral oil and coolant mixtures, and used oil filters containing free liquids may be generated.<br><br>Drained and mechanically crushed oil filters, and rags and oil absorbent materials (not containing free liquids) will also be generated but treated as putrescible waste.<br><br>Waste oil sludge will be generated in the oil separators and stormwater oil skimmer. | documentation shall be obtained for a period of at least 7 years.<br><br>Hazardous waste materials and dangerous goods will be disposed of in accordance with the relevant legislation and Project requirements at approved and certified facilities.<br><br>Concrete may not be washed out onto laydown areas or drainage lines and must be captured and disposed of in wastewater collection sumps designed to capture runoff from the washing down plant, vehicles and equipment.<br><br>Concrete loading pads will drain to wastewater collection sumps.<br><br>All oily or contaminated products such as rags, filters, grease cartridges etc. are to be disposed into hydrocarbon bins or relevant containment and removed off-site by licensed contractor.<br><br>Wastes that are not suitable to be disposed into provided waste receptacles i.e., product liquids, incompatible materials, impacted soils etc. will be containerized separately.<br><br>Septic waste is to be pumped into a licensed liquid waste transport vehicle and taken to a licensed facility.<br><br>Batteries will be stored on-site in bunding prior to being removed and recycled. | |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| | | Used engine coolant and lubricating oils will be containerized (IBC), for recycling at licensed waste facility.<br><br>Waste oil to be stored on-site in a secure bunded area and periodically removed by a licensed waste contractor to a licensed waste facility.<br><br>Empty printer and toner cartridges will be segregated and removed to a recycling service provider.<br><br>Tyres not mixed with other waste streams and will be removed by a licensed contractor for recycling. No greater than 100 tyres will be on-site at any time.<br><br>Ensure hydrocarbon and hazardous waste skips are appropriate to the waste type (i.e., fitted with lid and sealed).<br><br>Petroleum products and used filters shall be drained into an appropriate container to remove any leftover product prior to disposal as solid hydrocarbon waste.<br><br>Ensure bunds do not contain liquids. Following rain events bunds will be inspected and pumped dry, and if required into a controlled waste IBC for contaminated/ oily water for appropriate removal, treatment or disposal.<br><br>Soils contaminated by spills are to be removed to an appropriate stockpile location for remediation or disposal.<br><br>All contaminated stormwater (levels exceeding nominated criteria) i.e. runoff containing hydrocarbons >5ppm Total | |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| | | Petroleum Hydrocarbons (TPH) shall not be discharged into the environment without treatment under any circumstance.<br><br>Wastewater collection sumps will be sized sufficiently to allow for particulate matter to settle out. Wastewater (after particulates settle out) to be pumped to a recycled water tank for reuse in batching and washing concrete truck agitators.<br><br>Excess wastewater will be disposed of offsite at an approved licensed facility.<br><br>Other non-hazardous waste will be disposed of at a landfill for a suitable class of contamination. In accordance with the Solid and Liquid Waste Management Plan, the EPC Contractor ensure that as much of the material as possible is sorted for recycling, particularly during construction. | |
| **Solid Wastes** | Including dewatered sludge from seawater treatment, waste from offices, and construction waste | Solid wastes will be stored in a way that does not attract vermin or native fauna. Bins and skips (with lids) will be labelled and maintained so as to hold the intended waste stream securely.<br><br>General putrescible refuse (fitted with secure lids) will be made available for easy access within, office, workshop and plant areas.<br><br>Office, workshop, other applicable plant areas and/or the central waste management facility will have designated bins or stockpiles for recyclable or re-useable materials. | Monitoring as per section 8. |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| | | Facilities used for the receiving of waste from the site are appropriately licensed to accept the classified waste type.<br>Solid wastes will be removed off site by a licensed controlled waste carrier.<br>Signage will be provided to indicate appropriate segregation of waste bins/receptacles.<br>Details of catalyst types, quantities and frequencies of replacement will be determined at a later date. Possible arrangements with the catalyst vendors will be reached to take back the spent catalyst for recovery of useful metals.<br>Other non-hazardous waste will be disposed of at a landfill for a suitable class of contamination. In accordance with the construction issued SLWMP, the CONTRACTOR is to ensure that as much of the material as possible is sorted for recycling. | |
| **Concentrated brine solids** | Concentrated brine solids are sediment and residual salt. Brine is the by-product of seawater desalination; it is extremely concentrated seawater that causes detrimental environmental impacts due to its high salinity. | The brine evaporation pond will have to periodically be cleaned of sediment and residual salts. The residual solids will be handled as a controlled waste in accordance with statutory requirements and sent to designated (off-site) disposal location. | Monitoring as per section 8. |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| | On the Project, Water collected in the saline water pond will be sampled and analysed before discharge to the MUBRL as per section 8.3. Where acceptance criteria are not met, water is transferred to the brine evaporation pond for disposal by evaporation. | | |
| **Intractable Waste** | Intractable waste is waste that is a management problem by virtue of its toxicity or chemical or physical characteristics which make it difficult to dispose of or treat safely and is not suitable for disposal in a Class I, II, III or IV landfill.<br>The Project will produce spent catalysts and resins, which may be defined as intractable or hazardous.<br>Details of catalyst types, quantities and frequencies of replacement will be determined at a later date closer to construction. | During construction the CONTRACTOR will consult with an appropriately licensed waste handler to determine the appropriate classification and disposal requirements on an as-needed basis. | Monitoring as per section 8. |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| **Controlled Wastes** | | | |
| **Controlled Wastes** | In accordance with the DWER 2020 *Waste categorization for Controlled Waste*, **Appendix A** describes and categorises all hazardous wastes which must be duly recognised, handled, treated and/or disposed of as controlled waste as defined by the *Environmental Protection (Controlled Waste) Regulations 2004*. | The following management will be applied during construction:<br>• Ensure the controlled waste is properly contained on premises to prevent discharge into the environment.<br>• Stockpile areas will be designated and appropriately managed to allow storage of controlled wastes prior to collection for disposal.<br>• Ensure a licensed Carrier is engaged to transport-controlled waste to an approved location of disposal.<br>• Ensure the controlled waste meets specific criteria for transportation before the Carrier transports the waste.<br>• Provide accurate information to the carrier regarding the category, quantity and type (Bulk or Packaged) of controlled waste.<br>• Ensure a receipt is obtained from the Driver prior to the controlled waste being transported and kept for a period of three years. | Weekly Environmental Inspections.<br><br>Regular reviews and audits of waste receptacles, incident reports and material tracking registers.<br><br>Review of waste receipts.<br><br>Monitoring as per section 8 |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| | | • Ensure that Packaged Controlled Waste is provided to the carrier in a container compatible with the waste being transported.<br><br>Wherever practicable, separate receptacles and signage for individual types of controlled waste will be placed at the initial point of disposal. Further segregation of controlled wastes shall occur at the central waste processing facility. Bulk receptacles, bins or stockpile areas will be designated and appropriately managed to allow storage of controlled wastes prior to collection for disposal. | |
| **Inorganic Chemicals** | The Project may generate used lead acid batteries as part of the operation of equipment and vehicle maintenance area. | Batteries will be stored on-site in bunding prior to being removed and disposed of at an appropriately licensed facility. | Monitoring as per section 8.2.1 and 8.2.2 |
| **Industrial Wastewater** | An equipment and vehicle wash bay will be located within the workshop area of the Project, within Site F, which will generate wash waters. | Wash down water and high salt water will be routed to the brine water pond. This contaminated water pond will be sized to be able to cope with the flow of wastewater as well as excess from a 1 in 100-year rain event from the site.<br><br>Equipment servicing and wash-downs will take place in designated areas. Field servicing will be undertaken in a manner that facilitates containment of all hydrocarbons and chemicals. All facilities and operations should be compatible with the recommendations in DEWR WQNP 28 Mechanical | Monitoring as per section 8. |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| | | Servicing and Workshops & WQPN 68 Mechanical Equipment Wash-down. | |
| **Soils & Sludge** | Containers and drums contaminated with residues of controlled waste will be generated during construction. | Any soils contaminated with a controlled waste, such as oil, during construction activities will be treated as controlled waste. | Monitoring as per section 8. |
| **Acid Sulfate Soils** | ASS soils may be excavated during construction. | ASS soils that have not been treated and appropriately reused onsite (if treated) will be treated as controlled waste.<br><br>Untreated ASS Waste soils will be disposed of in accordance with the ASSMP. | Monitoring as per section 8.2.1, 8.2.2 |
| **Miscellaneous** | Used tyres may be generated at the Project, however this is unlikely as all vehicle tyre changes will occur off-site. | Tyres not mixed with other waste streams and will be removed by a licensed contractor for recycling. No greater than 100 tyres will be on-site at any time. | Monitoring as per section 8. |
| **Liquid Wastes** | | | |
| **Sewerage & Domestic Waste Organic Waste** | The Project will generate domestic sewage and waste based on an average of 80-120 staff and other site workers per day on site. | Black/grey water from permanent staff amenities including toilets, showers, washing and kitchen facilities will be treated via a sewerage treatment plant prior to being discharged to the Water Corporation's MUBRL. | Monitoring as per section 8 |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| | The Project will generate sewage waste from the sewage treatment plant located in Site C. | Solid wastes from the treatment plant will be disposed offsite by an appropriately licensed waste contractor. | |
| **Effluent / wastewater & Condensate** | Additional sources of liquid waste include:<br>• Saline water effluent streams<br>• Process condensate<br>Projected liquid discharges are:<br>• Rainwater runoff from the process plant areas and other infrastructure.<br>• Oily wastewater from process pumps will be discharged via an oil separator to the wastewater system. The separated oil is collected in drums and will be disposed of to an acceptable waste processing facility offsite.<br>The guiding philosophy is to maximise the recycling and reuse of | The following general mitigation measures will apply to all areas:<br>• Liquid wastes will be securely stored in bunded areas that will contain leaks or spills from all containers.<br>• Equipment servicing and wash-downs will take place in designated areas. Field servicing will be undertaken in a manner that facilitates containment of all hydrocarbons and chemicals. All facilities and operations should be compatible with the recommendations in DEWR *WQNP 28 Mechanical Servicing and Workshops* & *WQPN 68 Mechanical Equipment Wash-down.*<br>• Facilities used for the receiving of waste from the site are appropriately licenced to accept the classified waste type.<br>• Liquid wastes will be removed off site by a licenced controlled waste carrier.<br>• Black / grey water from permanent staff amenities including toilets, shower, washing and kitchen facilities | Weekly Environmental Inspections.<br><br>MUBRL water acceptance quality monitoring prior to discharge as required.<br>Monitoring as per 8 |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| | water, as water is a precious utility for this Project. | will be treated via a sewage treatment plant prior to discharge to the MUBRL.<br>• Discharge to the MUBRL will comply with the conditions, including water quality standards, in Ministerial Statements 567 and 594 under Part IV of the EP Act.<br>• Saline water (Brine) which does not meet the MUBRL discharge specification will be sent to the brine evaporation pond. | |
| **Concrete Batching Plant** | Water will be used for dust suppression and for washing plant and equipment at the batching plant, including washing out of concrete truck agitator drums. Contaminated wastewater from these activities may be highly alkaline. | Concrete wastes will be managed in accordance with the Concrete Batching Management Protocol (Appendix M of the CEMP).<br>Concrete may not be washed out onto laydown areas or drainage lines and must be captured and disposed of in wastewater collection sumps designed to capture runoff from the washing down plant, vehicles and equipment.<br>Concrete loading pads will drain to wastewater collection sumps. | Monitoring as per section 8 |
| **Construction specific wastewater** | During construction the main wastewater sources will be: | Construction waste from the Project will be managed in accordance with the management measures stipulated in the Construction Environmental Management Plan and this Solid and Liquid Waste Management Plan. There is no waste | Monitoring as per section 8 |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| | • Staff amenities including toilet, shower and crib facilities.<br>• Any areas where fuel and chemicals are stored, used or decanted.<br>• Vehicle/Machinery cleaning and maintenance areas.<br>• Concrete batching plant contaminated wastewater. | disposal on site and all domestic wastes will be regularly removed from site for recycling, reuse or disposal by appropriately licensed contractors.<br>Wastewater from these areas will need to be managed in line with the following conditions:<br>• Temporary storage systems are to be appropriately bunded and located a minimum of 100m from any watercourse.<br>• Equipment servicing and wash-downs will take place in designated areas. Field servicing will be undertaken in a manner that facilitates containment of all hydrocarbons and chemicals. All facilities and operations should be compatible with the recommendations in DEWR WQNP 28 *Mechanical Servicing and Workshops* & WQPN 68 *Mechanical Equipment Wash-down.*<br>• All stormwater proposed for discharge will first be contained in an appropriately lined sediment basin, to allow sediment to settle out.<br>• Any discharge to the MUBRL must comply with the water quality standards provided in Section 8.3.<br>• The design of the wastewater management system will be sufficient to handle the anticipated loadsof the Project's peak number of construction staff; and | |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| | | • A monitoring and maintenance schedule, approved by the CONTRACTOR's Environmental Lead and the OWNER Environment and Heritage Manager, is to be established based on the specifics of the wastewater management system chosen.<br>• Management of concrete wastewater as per the Concrete Batching Management Protocol (Appendix M of the CEMP).<br>**<u>Stormwater diversions</u>**<br>To handle liquid waste streams, the Project will have clean stormwater, brine and contaminated water ponds. The clean stormwater pond will collect rainwater from roofs, open ground, roads and parking areas. Condensate from air chillers will be transferred directly to the seawater cooling tower basin. Areas inside process units will be paved with suitable drainage.<br>Oily water is segregated from other spills collected in sumps and sent to a dedicated contaminated oil pond, which includes an oil separator. Other spills, wash down water and high salt water will be routed to the brine water pond. This contaminated water pond will be sized to be able to cope with the flow of wastewater as well as excess from a 1 in 100-year rain event from the site.<br>Stormwater moving across each of the Project sites (i.e., Site C, Site F, causeway, conveyor and Port) during construction | |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| | | phase of the Project will be managed in accordance with the strategies set out in the *Confirmed Surface Water Management Plan,* in addition to:<br>• All storm water will be contained on site and routed to the stormwater pond.<br>• If not used on site, all stormwater proposed for discharge will first be contained in anappropriately lined sediment basin, to allow sediment to settle out; and<br>• Maintenance of the stormwater flows from the hills outside of site C to the intertidal flats.<br>• The stormwater collection and drain system will be designed to handle a 1 in 100-year rain event.<br>• The stormwater drainage system will be designed in accordance with *Australian Rainfall and Runoff: A Guide to Flood Estimation (Ball J et al, 2019), Water Quality Protection Note 52: Stormwater management at industrial sites (Department of Water, 2010), Austroads Waterway Design Guidelines and Australian Standards.*<br>**<u>Site C Re-Use</u>** | |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| | | In Site C, uncontaminated stormwater runoff will be collected in a sediment basin and used for dust suppression and other construction needs.<br><br>This measure will be implemented as part of the early works once the site's fillworks has been completed. Prior to its construction, the requirements for sediment and erosion control (outlined in the Water Quality, Erosion and Sediment Control Construction Management Sub-Plan (Attachment A to the CEMP)) will be maintained.<br><br>Where practicable, water reuse opportunities will also be sought in other Project areas. | |
| **Stormwater & Wastewater during commissioning** | The Project will bring on-line five primary wastewater streams during the construction phase. These will come into operational effect towards the end of the construction phase, during commissioning of the plant and associated facilities, see **Attachment A – Process / Wastewater Reticulation.** | • Black/grey water from permanent staff amenities including toilets, showers, washing and kitchen facilities will be treated via a sewerage treatment plant prior to being discharged to the Water Corporation's MUBRL.<br>• Solid wastes from the treatment plant will be disposed offsite by an appropriately licensed waste contractor.<br>• During start-up, high salt concentration water (Brine) generated as part of the desalination plant can be discharged to two locations, depending on the salt content of the Brine stream:<br>I. Brine from the desalination plant will normally be discharged to the MUBRL for | Monitoring as per section 8 |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| | | offsite disposal after being diluted and mixed with the seawater blowdown stream from the plantcooling tower, which meets the discharge specifications; and<br><br>II. Brine which does not meet the MUBRL discharge specification will be sent from the saline water pond to the saline evaporation pond. Solid waste from this pond will be removed off site by an appropriately licensed waste contractor/operator and disposed at a licensed wastefacility.<br>• Once the plant is operating and MUBRL blowdown established, the saline water pond will be analysed and should this be acceptable, blended back into the blowdown stream as a small addition,ensuring MUBRL discharge specifications are not compromised.<br>• Stormwater generated on site will be managed as two separate streams:<br>I. Stormwater that could be contaminated by spills or leaks from process activities (first flush) will be directed to a dedicated sump and then pumped to the saline water pond for pre-treatment, prior to being discharged to the MUBRL or evaporated in an evaporation pond; and | |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| | | II. Uncontaminated stormwater will not be treated, but rather will be pumped directly from thestormwater holding pond into the seawater used for cooling on site.<br>• Seawater will be recirculated with a small component (approximately 3.5%) blown down anddischarged off site via the MUBRL.<br>• Process condensate will be polished before being added back into the demineralized water andreused on site.<br>Wastewater generated during operation of the urea processing plant is provided in the indicative flow diagram in Attachment A and will be managed by the OWNER. However, the correct installment of the design criteria to achieve these outcomes must be ensured by the CONTRACTOR team prior to commissioning. | |
| **Plant Sewage** | Domestic wastewater, primarily black and grey water from staff amenities including toilets, shower, washing and kitchen facilities is not discharge separately to the MUBRL | It is treated, recycled and reused within the plant, with any excess in those streams forming part of the saline water that is ultimately disposed of to the MUBRL.<br>Black water will be treated in a typical pre-treatment package unit to ensure that an acceptable water quality is achieved for recycling and reuse on site with no usual direct disposal to the environment or offsite. | Monitoring as per section 8 |

| Waste Type | Waste Description | Waste Management Strategy (Construction) | Monitoring |
|---|---|---|---|
| | | Solid wastes from the treatment plant will be disposed offsite by an appropriately licensed waste contractor. | |

### 7.4 Management Protocols

Mitigation measures presented in the Solid Liquid Waste Management Protocol, Table 7-2, provide the CONTRACTOR team and its sub-contractors with minimum standard controls to ensure protection of the environment.

**Table 7-2 Solid Liquid Waste Management Protocol**

| Item No. | Requirements | Project Area |
|---|---|---|
| **OWNER SPECIFIC CONTROLS**<br>Project areas = CF – Site C & F / Ca – Causeway / Co – Conveyor / P – Port | | |
| 1. | To minimise and manage the creation of solid and liquid wastes, a Waste Management Plan will be prepared for the Project. The waste minimisation procedures in the Plan will be designed around the waste hierarchy in order of preference, that is Waste avoidance (most preferred); Reduction; Reuse; Recycling: Disposal (least preferred). | CF, Ca, Co, P |
| 2. | Liquid wastes will be securely stored in bunded areas that will contain leaks or spills from all containers. | CF, Ca, Co, P |
| 3. | Solid waste storage areas will be provided on site. All waste will be segregated to maximise reuse and recycling. | CF, Ca, Co, P |
| 4. | Solid wastes will be stored in a way that does not attract vermin or native fauna. Bins and skips (with lids) will be labelled andmaintained to hold the intended waste stream securely. | CF, Ca, Co, P |
| 5. | Ensure that facilities used for the receiving of waste from site are appropriately licensed to accept the classified waste type. | CF, Ca, Co, P |
| 6. | If not treated or reused on site, liquid and controlled wastes will be removed off site by a licensed controlled waste carrier. | CF, Ca, Co, P |
| 7. | Solid wastes will be removed off site by an appropriately licensed contractor. | CF, Ca, Co, P |
| 8. | The project site will be kept clean and tidy at all times and litter and waste will be deposited into appropriate litter or recycling bins at the Project's nominated waste collection areas. | CF, Ca, Co, P |
| 9. | During the construction phase, temporary wastewater storage systems are to be appropriately bunded and located a minimum of 100m from any watercourse | CF, Ca, Co, P |
| 10. | The design of the wastewater management systems will be sufficient to handle the anticipated loads of the project's peak number of construction and operational staff. | CF, Ca, Co, P |

| Item No. | Requirements | Project Area |
|---|---|---|
| 11. | Prior to discharge, all re-directed and re-purposed streams of water are to be appropriately contained and treated to comply with conditions relating to waste management and discharge. It is to be ensured that the appropriate treatment systems are aligned with their associated hold ponds, and that the source of runoff is properly classified to contain the relevant contaminants to their associated hold pond. | CF, Ca, Co, P |
| 12. | Any discharge to the water Corporation's MUBRL must comply with the Conditions, including water quality standards, in Ministerial Statements 567 and 594 under Part IV of the EP Act. | CF, Ca, Co, P |
| 13. | All requirements of PCF-PD-EN-SWMP Surface Water Management Plan are to be implemented throughout the life of the Project. | CF, Ca, Co, P |
| **CONTRACTOR SPECIFIC CONTROLS**<br>Project areas = CF – Site C & F / Ca – Causeway / Co – Conveyor / P – Port | | |
| 1. | CONTRACTOR shall implement the latest version of the Solid and Liquid Waste Management Plan and all management measures stated within this Plan that apply to CONTRACTOR construction works. | CF, Ca, Co, P |
| 2. | CONTRACTOR shall ensure compliance with the Mitigation Measures stated within the Table 7-1 of the PCF-PD-EN-SWMP Surface Water Management Plan | CF, Ca, Co, P |
| 3. | CONTRACTOR will implement and comply with the Water Quality, Erosion and Sediment Control Management sub-Plan (Attachment A of the CEMP). | CF, Ca, Co, P |
| 4. | For control measures regarding the handling, re-use, disposal and storage of hazardous / contaminated waste products, see CEMP Appendix F for Hydrocarbons and Hazardous Substances Management Protocol. | CF, Ca, Co, P |
| 5. | Should bulk asbestos containing material be identified, procedures within the Asbestos & Fibrous Materials Management Protocol (Appendix I of the CEMP), will be implemented. | CF, Ca, Co, P |
| 6. | Wastewater discharge on to or off site, will require the written approval of the OWNER Environment and Heritage Manager;<br>If not used on site, all stormwater proposed for discharge will first be contained in an appropriately lined sediment basin, to allow sediment to settle out; and<br>Any discharge to the Water Corporation MUBRL must comply with the Conditions as per Ministerial Statements 567 and 594, including water | C |

| Item No. | Requirements | Project Area |
|---|---|---|
| | quality standards that apply to the discharge (See Table 7-1 of the SLWMP). | |
| 7. | All liquid waste removed from site during construction will have tracking forms and volumes reported monthly. | CF, Ca, Co, P |
| 8. | Uncontaminated stormwater runoff will be collected in a sediment basin and used for dust suppression and other construction needs. This measure will be implemented as part of the early works once the site's fill works has been completed. | CF, Ca, Co, P |
| 9. | The design of the wastewater management system will be sufficient to handle the anticipated loads of the project's peak number of construction staff. | CF |
| 10. | A monitoring and maintenance schedule will be established based on the specifics of the wastewater management system chosen. | CF |
| 11. | A Material Tracking System will be implemented on the Project to keep accurate qualitative, quantitative and spatial records of waste soil stored on, and moving on or off the Project site. | CF, Ca, Co, P |
| 12. | A Waste Tracking Register is to be maintained to record all waste removed from site. | CF, Ca, Co, P |
| 13. | Requirements for waste disposal and segregation shall be included in the site induction, in addition personnel are to be educated via Toolboxes, Pre-starts and awareness material/notices on:<br>• Impacts and risks of waste<br>• Hierarchy of waste management<br>• Waste streams, segregating and disposing of waste and disposal procedures of waste<br>• Waste reporting requirements<br>• Maintaining the ablution facilities<br>• Emergency Spill Response | CF, Ca, Co, P |
| 14. | CONTRACTOR will implement procedures to ensure all waste material is categorised appropriately and disposed of accordingly and lawfully. | CF, Ca, Co, P |
| 15. | Only licensed waste contractors will be used onsite, and all waste removed will be tracked to the appropriate licensed facility where additional records of transport and disposal will be kept and maintained. | CF, Ca, Co, P |
| 16. | Adequate waste receptacles for various waste streams shall be available. | CF, Ca, Co, P |

| Item No. | Requirements | Project Area |
|---|---|---|
| 17. | Recycling of as many materials as possible will be done to reduce wastes to landfill.<br><br>Recycling will consider the SLWMP 7.2.2 | CF, Ca, Co, P |
| 18. | Containment measures shall be implemented to reduce windswept waste from leaving site. | CF, Ca, Co, P |
| 19. | Waste skips shall be closed off so that fauna cannot access. | CF, Ca, Co, P |
| 20. | Weather conditions will be included in daily pre-start meetings. | CF, Ca, Co, P |
| 21. | Smoking only permitted in designated smoking areas fitted with butt out bins. | CF, Ca, Co, P |
| 22. | Where testing is required to verify classifications for soils or other wastes (spills etc), NATA laboratory will be used. | CF, Ca, Co, P |
| 23. | CONTRACTOR to only operate ablutions facilities after approval by the local Council (Approval to Construct or Install an Apparatus for the Treatment of Sewage (*Health Act, 1991)),* including high level alarms, minimum capacity of belly tanks to comply with site population and site situation etc. | CF, Ca, Co, P |
| 24. | In accordance with the DWER 2020 *Waste categorisation for Controlled Waste*, the Solid & Liquid Waste Management Plan (SLWMP) describes and categorises all hazardous wastes which must be duly recognised, handled, treated and/or disposed of as controlled waste as defined by the *Environmental Protection (Controlled Waste)* Regulations 2004. | CF, Ca, Co, P |
| 25. | Ensure the controlled waste is properly contained on premises to prevent discharge into the environment. | CF, Ca, Co, P |
| 26. | Ensure a licensed Carrier is engaged to transport any controlled waste to an approved location of disposal. | CF, Ca, Co, P |
| 27. | Ensure the controlled waste meets specific criteria for transportation before the Carrier transports the waste. | CF, Ca, Co, P |

| Item No. | Requirements | Project Area |
|---|---|---|
| 28. | Provide accurate information to the carrier regarding the category, quantity and type (Bulk or Packaged) of controlled waste. | CF, Ca, Co, P |
| 29. | Ensure a receipt is obtained from the Driver prior to the controlled waste being transported and kept for a period of three years. | CF, Ca, Co, P |
| 30. | Ensure that Packaged Controlled Waste is provided to the carrier in a container compatible with the waste being transported. | CF, Ca, Co, P |
| 31. | Regular services of the ablution's facility will be established with the licenced waste contractor dependent on forecast waste and on-site levels. | CF, Ca, Co, P |
| 32. | Services and volumes of sewage removed from the Project will be recorded within the MTS and reported on a monthly basis. | CF, Ca, Co, P |
| 33. | Septic tanks will be checked to ensure no leaks, blockages or overflows. | CF, Ca, Co, P |
| 34. | High level alarms will be fitted to the septic system to signal high levels of septic waste, in which the alarms will sound and shut-off water feeds upon triggering. | CF, Ca, Co, P |
| 35. | Contaminant free sanitisers and detergents will be used where practical. | CF, Ca, Co, P |
| 36. | Water that may have become contaminated by hydrocarbon or other material will be inspected for visual assessment prior to end-use as non-contaminated. | CF, Ca, Co, P |
| 37. | Oily water is to be treated on-site by an oil water separator or removed off-site by a licensed waste contractor for processing. | CF, Ca, Co, P |
| **PPA SPECIFIC CONTROLS** Project areas = CF – Site C & F / Ca – Causeway / Co – Conveyor / P – Port | | |
| 1. | Reduce the volume of wastes generated during construction that require disposal to landfill or specialised treatment. | Co, P |
| 2. | Comply with the Resource Management Action Plan and the Industry Community Litter Initiatives (e.g. ICARE Partnership, Adopt a-Spot Program) where it is applicable to CONTRACTOR SOW. | Co, P |
| 3. | Manage construction works to prevent pollution of Port land and seabed and ensure environmental impacts of contamination are minimised. | Co, P |

| Item No. | Requirements | Project Area |
|---|---|---|
| 4. | Comply with any management of contamination via PPA Contaminated Sites Management Programs, the Commercial Lease Inspection Program, Dredged Material Management Plan(s), Development Approval Process and Guidelines, the Contaminated Sites Management Programs and the Technical Advisory and Consultative Committees Environment Monitoring Plan. | Co, P |
| 5. | Effectively manage construction activities to ensure water resources are used efficiently and contamination of stormwater, groundwater, surface water and marine waters is minimised. | Co, P |
| 6. | Minimise impacts of stormwater flows from construction works on the environmental values of waterways, groundwater systems and receiving marine environment. | Co, P |
| 7. | Comply with any long-term security and sustainability requirements for water use during construction | Co, P |
| 8. | Minimise impacts of contamination to marine water quality from construction works | Co, P |
| 9. | Minimise impacts of contamination to groundwater from construction works | Co, P |
| 10. | Avoid environmental contamination by complying with the following plans where they are applicable to the Project Construction and Operations; Environmental Quality Management Framework, Commercial Lease Inspection Program, Resource Management Action Plan, Dredged Material Management Plan(s), Environment Monitoring Plan, Development Approval Process and Guidelines and the Marine Oil Pollution Contingency Plans. | Co, P |
| **Monitoring**<br>Project areas = CF – Site C & F / Ca – Causeway / Co – Conveyor / P – Port | | |
| 1. | Compliance audits and inspections as per CEMP . | CF, Ca, Co, P |
| 2. | All waste removed off-site will be recorded in a Waste Management and Tracking Register. | CF, Ca, Co, P |
| 3. | A monitoring and maintenance schedule, approved by the Environment and Heritage Manager, will be established and implemented based on the specifics of the wastewater management system chosen. | CF, P |
| **Reporting**<br>Project areas = CF – Site C & F / Ca – Causeway / Co – Conveyor / P – Port | | |

| Item No. | Requirements | Project Area |
|---|---|---|
| 1. | Incident, near miss and hazard reporting as per the CEMP. | CF, Ca, Co, P |
| 2. | Monthly reporting of Waste Management and Tracking Register in the Monthly Environmental Report (refer CEMP). | CF, Ca, Co, P |

### 7.5 Management Actions & Targets

The Confirmed Fauna Management Plan (PCF-PD-EN-FaMP), Confirmed Threatened Species Management Plan (PCF-PD-EN-TSMP) and Confirmed Surface Water Management Plan (PCF-PD-EN-SWMP) include management actions and targets that relate to waste management on the Project.

The management actions, targets, triggers and thresholds specifically relating to solid and liquid waste management are detailed within Table 7-3 below to ensure that the construction team and sub-contractors can ensure compliance and track performance against these.

**Table 7-3 Management Actions, Triggers and Targets relating to Waste Management**

| Management Action | Management Target / Trigger Criteria | The CONTRACTOR Responsibility in achieving the Action & Target |
|---|---|---|
| *Fauna Management Plan Actions & Targets* | | |
| **FaMP MA 10**<br>**Introduced Fauna**<br>Introduce and implement hygiene procedures which result in the reduction of food waste around the processing facility to ensure that feral predators are not attracted to the facility.<br>This will include provisions for:<br>• Waste storage.<br>• Bins and skips appropriately sealed and labelled (including possible fencing off of waste receptables). | **FaMP Management Target 10**<br>No new introduced/ pest species within the Project footprint and in adjacent area as a result of the Project activities (i.e., waste management). | **Indicator:**<br>• Increase in introduced fauna sightings onsite. (recorded via camera traps (if being utilised); scats and tracks and visual observations).<br>• Increase in conservation significant fauna deaths or injuries from predation of introduced<br>**Monitoring Method:**<br>• Reports from the pest management program.<br>• Visual inspections of waste areas.<br>• Monitored through environmental inspections and incident records.<br>• Site inspection to assess Project associated food waste or other waste within or adjacent to Project Area not disposed in the demarcated areas.<br>• Pest Animal Register (for conservation significant fauna deaths or injuries). |

| Management Action | Management Target / Trigger Criteria | The CONTRACTOR Responsibility in achieving the Action & Target |
|---|---|---|
| | | • Review ccompliance with the Pest Management Plan (PCF-PD-EN-PMP).<br>**Reporting:**<br>Reported through **Monthly Project Environmental Reporting** to the OWNER Environment and Heritage Manager.<br>Any required reporting of **incidents and non-compliances** to the OWNER immediately to ensure the OWNER can report incidents and non-compliance to DWER and/or Minister (DCCEEW).<br>Report sightings of threatened and priority fauna - To submit the report form, email it to fauna@dbca.wa.gov.au<br>Provide all data, monitoring reports, observations, investigations and incidents information to the OWNER as soon as practicable to ensure the OWNER is able to carry out regulatory reporting requirements within specified timeframes. |
| *Threatened Species Management Actions and Limiting Criteria (Triggers & Thresholds)* | | |

| Management Action | Management Target / Trigger Criteria | The CONTRACTOR Responsibility in achieving the Action & Target |
|---|---|---|
| **TSMP MA 20**<br>All wastes (putrescible, recyclable, non-reusable) will be sent offsite for recycling or disposal. | **Trigger Criterion:**<br>• Increase in introduced/pest species on site attracted by solid and liquid wastes.<br>• Solid and liquid wastes not managed in accordance with requirements. | **Monitoring Method:**<br>• Implementation of the Solid and Liquid Wastes Management Protocol and Solid and Liquid Wastes Management Plan to reduce the likelihood of attraction of introduced/pest species to the Project area.<br>• Pre-starts to include an environmental focus including the appropriate management of waste.<br>**Reporting:**<br>• Reporting to the OWNER in the monthly environmental report.<br>• Provide the OWNER with any relevant data and information following incident and/or exceedance of threshold to ensure the OWNER can report as per regulatory requirements.<br>• Refer to the **CONTRACTOR CEMP** for reporting timeframes and CONTRACTOR responsibilities in regard to notifiable incidents and exceedance of thresholds. |

| Management Action | Management Target / Trigger Criteria | The CONTRACTOR Responsibility in achieving the Action & Target |
|---|---|---|
| **TSMP MA 21**<br>All general-purpose bins will be lidded and emptied regularly to ensure the lids remain completely shut. | **Trigger Criterion:**<br>• Waste receptacles nearing or breaching capacity weekly.<br>• Spills from bins due to improper concealment.<br>• Fauna opportunistically feeding from waste receptables.<br>• Waste receptacles attracting nuisance species. | **Monitoring Method:**<br>• Implementation of the Solid and Liquid Wastes Management Protocol and Solid and Liquid Wastes Management Plan to reduce the likelihood of attraction of introduced/pest species to the Project area.<br>• All waste containers are to have lids which are to always remain closed. No overfilling of bins will be permitted.<br>• Monitoring for fauna (ie. mice, birds, cockroaches etc.) feeding from the waste receptacles.<br>• Inductions to be carried out for all new employees prior to commencement on site to advise on the requirement.<br>**Reporting**<br>• Incidents and relevant information provided to the OWNER during Monthly Environmental Reporting.<br>• Bins not emptied or overfilled (not able to be shut) will be reported as incidents.<br>• All information and data provided to the OWNER within the required timeframes where an exceedance of the threshold criteria is identified and/or non- |

| Management Action | Management Target / Trigger Criteria | The CONTRACTOR Responsibility in achieving the Action & Target |
|---|---|---|
| | | compliance with the MS 1180 and/or EPBC 2018/8383. |
| **TSMP MA 38**<br>The Project will avoid, where possible, use best practice technology and risk-based management actions to minimise debris deposition (including litter and construction materials) within the marine environment. | **Trigger Criterion:**<br>• Debris is not contained within the Project area and is deposited in the marine environment.<br>**Threshold Criterion:**<br>• Fauna death associated with debris deposition in the marine environment. | **Monitoring Method:**<br>• The prevention of debris impacting the marine environment will be achieved through implementation of the Solid and Liquid Waste Management Plan and the Construction Environmental Management Plan.<br>• Weekly inspections of waste receptacles, stockpiles and chemical storage areas to ensure no contaminated substances or wastes are deposited in the marine environment.<br>• Inspection of bunding around stockpiles and chemical storage units to prevent discharges.<br>• Personnel training and competency records monitored to ensure capabilities present for spill response actions or identification of hazards / incidents relating to solid and liquid wastes. |

| Management Action | Management Target / Trigger Criteria | The CONTRACTOR Responsibility in achieving the Action & Target |
|---|---|---|
| | | **Reporting**<br>• Incidents and relevant information provided to the OWNER during Monthly Environmental Reporting.<br>• All information and data provided to the OWNER within the required timeframes where an exceedance of the threshold criteria is identified and/or non-compliance with the MS 1180 and/or EPBC 2018/8383. |
| **TSMP MA 39**<br>Spills of chemicals, hazardous materials and wastewater will be prevented from impacting the marine and terrestrial environments. | **Trigger criteria:**<br>• Spills or seepage of chemicals or hazardous liquid that are contained within the Project area and do not impact marine and terrestrial environments.<br>**Threshold Criteria:**<br>• A spill or seepage of chemicals, hazardous materials and wastewater to terrestrial or marine environments that exceed threshold criteria in the Surface Water Management Plan. | **Monitoring Method:**<br>• Spill prevention and management will be in accordance with the Construction Environmental Management Plan, Erosion, Sediment and Surface Water Quality Management Protocol, Spill Response Procedure, Surface Water Management Plan and Hydrocarbons and Hazardous Substances Management Protocol.<br>• The Surface Water Quality Management Protocol will be updated to include any Part V conditions around discharges, storage of chemicals and fuels, refuelling and spill management upon |

| Management Action | Management Target / Trigger Criteria | The CONTRACTOR Responsibility in achieving the Action & Target |
|---|---|---|
| | | approvals and licenses being issued by DWER.<br>• Environmental inspections to ensure the integrity of storage facilities and the proper storage requirements are being adhered to in accordance with the relevant Australian Standards.<br>• Storage of chemicals and hazardous materials shall not be permitted in the supratidal areas or other areas prone to flooding or drainage/runoff. A hazardous material no-go laydown zone map will be developed during the preparation of the emergency response plan.<br>• All surface water discharges on site will be diverted to a purpose-built stormwater facility for containment, treatment and reuse on site.<br>• Permanent infrastructure and laydown areas will avoid the higher, steeper areas along the southern boundary of the development envelope and will benefit from perimeter drainage.<br>• Run-off will be diverted into appropriate clean water and contaminated water catchment ponds for treatment and |

| Management Action | Management Target / Trigger Criteria | The CONTRACTOR Responsibility in achieving the Action & Target |
|---|---|---|
| | | subsequent discharge or disposal. Surface water ponds will all benefit from oil interceptors.<br>• Compliance audits and inspections in accordance with the Surface Water Management Plan.<br>• Monitoring effectiveness of management measures via Incident report forms.<br>**Reporting**<br>• Incidents and relevant information provided to the OWNER during Monthly Environmental Reporting.<br>• All information and data provided to the OWNER within the required timeframes where an exceedance of the threshold criteria is identified and/or non-compliance with the MS 1180 and/or EPBC 2018/8383. |
| **TSMP MA 40**<br>Spills (overflow) and seepage from brine storage pond and evaporative storage pond will be prevented from impacting the marine and terrestrial environments. | **Trigger Criterion:**<br>• Water leaks threatening contamination of the surrounding environment.<br>• Hold ponds nearing capacity limits.<br>• Daily inspection checklist not completed.<br>• Monitoring not conducted / missing. | **Monitoring Method:**<br>• Management and prevention of spills via overflow from the brine storage pond or evaporative storage pond will be in accordance with the Surface Water Management Plan, Spill Response Procedure, Erosion, Sediment and |

| Management Action | Management Target / Trigger Criteria | The CONTRACTOR Responsibility in achieving the Action & Target |
|---|---|---|
| | **Threshold Criterion**:<br>Spills and / or seepage from brine and / or evaporative storage pond. | Surface Water Quality Management Protocol and Hydrocarbons and Hazardous Substances Management Protocol.<br>• The management protocol's will be updated to include any Part V conditions upon approvals and licenses being issued by DWER.<br>• Inspections of the capacity and operational integrity of the brine and evaporative storage pond.<br>• Inspections of storage, transfer and loading areas for urea spills and water leaks that may impact urea condition.<br>• Monitoring effectiveness of management measures via Incident report forms.<br>**Reporting**<br>• Incidents and relevant information provided to the OWNER during Monthly Environmental Reporting.<br>• All information and data provided to the OWNER within the required timeframes where an exceedance of the threshold criteria is identified and/or non-compliance with the MS 1180 and/or EPBC 2018/8383. |

| Management Action | Management Target / Trigger Criteria | The CONTRACTOR Responsibility in achieving the Action & Target |
|---|---|---|
| **TSMP MA 43**<br>Monitoring of Multiuser Brine Return Line water quality. | **Trigger Criterion:**<br>• Saline water (Brine) does not meet the MUBRL discharge specification.<br>• Liquid waste not treated or reused on site requiring disposal.<br>**Threshold Criterion:**<br>Exceedance of Indicative Wastewater Acceptance Criteria to MUBRL for the Project:<br><br>*Parameter* — *Target*<br>pH — 6.9 – <8.3 pH units<br>Conductivity (TDS) — <75 mS/cm<br>Oxidation-reduction potential — <228 mV<br>Ammonia — <1,700 µg/L<br>Turbidity — <63 NTU<br>Arsenic III — <140 µg/L<br>Arsenic V — <275 µg/L<br>Cadmium — <36 µg/L<br>Chromium III — <459 µg/L<br>Chromium IV — <8.5 µg/L<br>Cobalt — <61 µg/L<br>Copper — <11 µg/L<br>Lead — <134 µg/L<br>Mercury — <1.4 µg/L<br>Nickel — <427 µg/L | **Monitoring Method**:<br>• Undertake periodic water quality monitoring of plant process water and treated wastewater prior to discharge to the Multiuser Brine Release Line (MUBRL) in accordance with the Project Environmental Management Plan Ministerial Statements 567 and 594.<br>• Undertake water quality monitoring of the MUBRL at the saline water pond and at the pipeline monitoring location prior to MUBRL receival in accordance with the Surface Water Monitoring Plan.<br>• Continuous, in-stream water quality monitoring for process control of relevant parameters.<br>• Campaign monitoring in advance of planned discharge to the MUBRL. Prior to discharge of wastewater to the MUBRL, wastewater is held in a holding basin with discharges planned in advance. These discharges will be undertaken in accordance with a wastewater discharge procedure to be developed under this Solid and Liquid Waste Management Plan. The |

| Management Action | Management Target / Trigger Criteria | The CONTRACTOR Responsibility in achieving the Action & Target |
|---|---|---|
| | Selenium <183 µg/L<br>Silver <49 µg/L<br>Vanadium <3,050 µg/L<br>Zinc <419 µg/L<br>E. Coli <13,000 MPN/100ml<br>Thermotolerant coliforms <910 CFU/100 ml | procedure will ensure that sampling is undertaken sufficiently in advance of planned discharge and to relevant Australian Standards, to enable analysis at a NATA accredited facility and using relevant USEPA (or suitable alternative) analytical techniques.<br>**Reporting**<br>• Incidents and relevant information provided to the OWNER during Monthly Environmental Reporting.<br>• All information and data provided to the OWNER within the required timeframes where an exceedance of the threshold criteria is identified and/or non-compliance with the MS 1180 and/or EPBC 2018/8383.<br>• Reporting as per Water Corporation requirements. |
| **TSMP MA 45**<br>Brine which does not meet the MUBRL discharge specification will be sent to the brine evaporation pond. | **Trigger Criterion:**<br>• Saline water (Brine) does not meet the MUBRL discharge specification.<br>**Threshold Criterion:** | **Monitoring Method:**<br>• The brine evaporation pond will be utilised:<br>o Where brine return is exceeds the Indicative Wastewater Acceptance |

| Management Action | Management Target / Trigger Criteria | The CONTRACTOR Responsibility in achieving the Action & Target |
|---|---|---|
| | Exceedance of Indicative Wastewater Acceptance Criteria to MUBRL for the Project:<br><br>*Parameter* — *Target*<br>pH — 6.9 – <8.3 pH units<br>Conductivity (TDS) — <75 mS/cm<br>Oxidation-reduction potential — <228 mV<br>Ammonia — <1,700 µg/L<br>Turbidity — <63 NTU<br>Arsenic III — <140 µg/L<br>Arsenic V — <275 µg/L<br>Cadmium — <36 µg/L<br>Chromium III — <459 µg/L<br>Chromium IV — <8.5 µg/L<br>Cobalt — <61 µg/L<br>Copper — <11 µg/L<br>Lead — <134 µg/L<br>Mercury — <1.4 µg/L<br>Nickel — <427 µg/L<br>Selenium — <183 µg/L<br>Silver — <49 µg/L<br>Vanadium — <3,050 µg/L<br>Zinc — <419 µg/L<br>E. Coli — <13,000 MPN/100ml<br>Thermotolerant coliforms — <910 CFU/100 ml | Criteria as required by Ministerial Statements 567 and 594.<br>○ To store saline streams in excess of 55,300 mg/l TDS.<br>○ To store excess stormwater.<br>○ To collect contaminated chemical sewer streams (other than Amine (an organic compound derived from ammonia by replacement of one or more hydrogen atoms by organic groups)).<br>• The brine evaporation pond will not receive grey water, MDEA or wastewater containing oil.<br>• Where brine is not suitable for disposal via the MUBRL it will be evaporated, and the residual salt will be collected and removed from site using a licenced waste handler.<br>• The brine evaporation pond has transfer pumps and reticulation to receive and pump out water to the MUBRL in large storm events.<br>• Monitoring of water quality will be in accordance with the Surface Water Management Plan. |

| Management Action | Management Target / Trigger Criteria | The CONTRACTOR Responsibility in achieving the Action & Target |
|---|---|---|
| | | • Weekly inspections of surface water diversions to be carried out, ensuring all run-off sources are diverted to appropriate hold ponds and treated as required.<br>• Visual monitoring of brine evaporation pond capacity.<br>**Reporting**<br>• Incidents and relevant information provided to the OWNER during Monthly Environmental Reporting.<br>• All information and data provided to the OWNER within the required timeframes where an exceedance of the threshold criteria is identified and/or non-compliance with the MS 1180 and/or EPBC 2018/8383.<br>• Reporting as per Water Corporation requirements. |
| **TSMP MA 46**<br>The Project will avoid, where possible, and otherwise use best practice technology and risk-based management actions to prevent contaminated stormwater discharging off site.<br>Where practicable, the site's clean stormwater | **Trigger Criterion:**<br>• Notable hydrocarbon iridescent sheen within stormwater collection ponds and ponds reaching 75% capacity.<br>**Threshold Criterion:** | **Monitoring Methods:**<br>• Monitoring of stormwater collection ponds during environmental inspections.<br>• Monitoring where required as per the CONTRACTOR Water Quality, Erosion |

| Management Action | Management Target / Trigger Criteria | The CONTRACTOR Responsibility in achieving the Action & Target |
|---|---|---|
| will be reused within the process plant.<br>Stormwater potentially contaminated by spills or leaks from process activities (first flush) will be directed to a dedicated sump and then pumped to the saline water pond for pre-treatment, prior to being discharged to the MUBRL or evaporated in an evaporation pond. | • Exceedance of water quality trigger levels as provided in the Surface Water Management Plan, stormwater ponds reached 100% capacity and discharging via the emergency spillway / perimeter drains. | & Sediment Control Management Sub-Plan (WQESCP).<br><br>**Reporting:**<br>• Reporting to the OWNER where exceedance of water quality trigger occurs.<br>• Provide data and details of exceedance to the OWNER for regulatory reporting requirements.<br>• InControl as an incident.<br>• Monthly reporting to the OWNER as an incident. |
| *Surface Water Management Actions & Targets* | | |
| ***SW MA 3***<br>***Surface Water Quality***<br>• Undertake quarterly monitoring of surface waters and compare against baseline results.<br>• Implement the surface water monitoring program (Section 2.3.2 of the SWMP) throughout construction of the Project to ensure there are no adverse impacts attributable to Project activities to surface water quality, including indications of excess | **SWMT 3**<br><br>During and after works, the physical parameters of surface water are not to significantly vary or fall below the values that exist onsite, prior to the works commencing. | **Indicator**<br>Surface water quality in alignment with DER guidelines prior to discharge or reuse.<br><br>Surface water baseline results.<br><br>**Method**<br>The CONTRACTOR will monitor water quality as per the provisions and method provided in Section 7. |

| Management Action | Management Target / Trigger Criteria | The CONTRACTOR Responsibility in achieving the Action & Target |
|---|---|---|
| nutrients, hydrocarbons, and ASS indications (i.e. Aluminium etc) and other COPC, identified in samples taken.<br>• Water will be treated to ensure discharge from hold ponds is clean and consistent with naturally occurring water quality from nearby creeks or surface runoff (compare monitoring results against baseline).<br>• Hold pond water to be treated and tested to ensure compliance with water quality requirements prior to discharge. | | Compare against baseline surface water quality as indicated by the Coffey 2022b Report (Appendix E of Attachment I of SWMP) and compare results against the nominated *ANZECC guidelines*.<br><br>NB: Attachment A includes a table that provides the required water quality criteria to compare monitoring results against.<br><br>**Reporting**<br>• Incidents and relevant information provided to the OWNER during Monthly Environmental Reporting.<br>• All information and data provided to the OWNER within the required timeframes where an exceedance of the threshold criteria is identified and/or non-compliance with the MS 1180 and/or EPBC 2018/8383. |
| ***SW MA 5***<br><br>***Pollution Control & Prevention*** | **SWMT 5**<br><br>**Pollution** caused by site activities will be **avoided** through appropriate containment, | **Indicator**<br>Stormwater (fresh and contaminated) run-off collection systems are effective. |

| Management Action | Management Target / Trigger Criteria | The CONTRACTOR Responsibility in achieving the Action & Target |
|---|---|---|
| • All surface water discharges on site shall be diverted to a purpose-built facility to treat (if required) and be contained by implementing the following actions:<br>• External water flows entering the Project's battery limits will be diverted around the construction footprint, using drainage structures such as catch drains and bunds.<br>• All drainage lines likely to receive run-off from disturbed areas, such as those downstream of worksites, will be fitted with geotextile silt fences. Rock checks should also be used in drains to slow flows and provide a lining to prevent scouring of underlying surfaces.<br>• Sediment basins will be added to drainage lines as necessary. Basins shall be designed relative to the catchment and likely flow levels for higher rainfall events. For water containing very fine sediment a longer detention period may be necessary to prevent turbid discharge.<br>• All stormwater proposed for discharge will first be contained in an appropriately lined sediment or attenuation basin, to encourage sediment to settle out. | diversion and treatment of surface water run-off. | Signs of stormwater not being captured.<br><br>**Method**<br>The CONTRACTOR team to conduct inspections of stormwater drainage, storage and sediment control structures to ensure hydraulic integrity and effectiveness.<br><br>Water quality will be monitored to ensure compliance with standards prior to discharge.<br><br>Monitoring water quality as per the Monitoring Provisions within section 7 of this sub-plan.<br><br>Monitoring for potential trace elements surrounding identified areas of sedimentation (to ensure accidental discharge has not occurred).<br><br>Monitoring of vegetation health.<br><br>**Reporting:**<br>The CONTRACTOR will provide details, incidents and data to the OWNER for any require regulatory reporting. |

| Management Action | Management Target / Trigger Criteria | The CONTRACTOR Responsibility in achieving the Action & Target |
|---|---|---|
| • Where possible, stormwater will be captured and used for construction activities and will be treated to meet regulatory discharge requirements before it leaves the Project boundary. Potentially contaminated stormwater (e.g., runoff which contains hydrocarbons) will not be discharged into the environment.<br>• Storm water collected from construction areas that is considered not to be at risk from hydrocarbon contamination will be kept separate from natural surface water and reused on site or discharged via sediment reduction controls.<br>• Run-off collected from hardstand surfaces, conveyor and product storage sheds in the production plant and the port areas will be managed to minimise impacts on surrounding environments, including marine environmental quality. | | • Incidents and relevant information provided to the OWNER during Monthly Environmental Reporting.<br>• All information and data provided to the OWNER within the required timeframes where an exceedance of the threshold criteria is identified and/or non-compliance with the MS 1180 and/or EPBC 2018/8383. |
| ***SW MA 10***<br><br>***Stormwater Ponds***<br>• For paved areas of the urea processing plant, there will be stormwater collection pits (epoxy coated concrete pit) where the first 15mm of | **SWMT 10**<br><br>Stormwater ponds and collection pits will be managed / treated with relevance to their source of diversion, concerning potential contaminants contained within. | **Indicator**<br>Stormwater diversion channel system<br><br>**Method**<br>The CONTRACTOR will implement monitoring of the discharge from any oily |

| Management Action | Management Target / Trigger Criteria | The CONTRACTOR Responsibility in achieving the Action & Target |
|---|---|---|
| stormwater can be collected. Stormwater collected will be treated by steam stripping or other means to bring ammonia (Total Kjeldahl Nitrogen) in water within limit, prior to reuse within the process plant.<br>• The stormwater pond includes an oil skimmer for removal of oil traces. These are sent to the oily water collection pit/processing.<br>• The Project's stormwater surface water system in the main process area (first flush) (Site C) will direct stormwater from hardstand areas into two separate streams which enable the containment and use of the runoff:<br>• Stormwater that could be contaminated by spills or leaks from process activities willbe directed for pre-treatment, prior to being discharged by the MUBRL or evaporated in an evaporation pond;<br>• Uncontaminated stormwater will not be treated but will be pumped directly from the stormwater holding pond into the seawater used for cooling on site.<br>• In Site C uncontaminated stormwater runoff will be collected in a sediment basin and used for dust suppression and other construction | Stored and treated water will be reused on site where applicable, and to the standards provided by DWER. | water separator to ensure it contains less than 5ppm Total Recoverable Hydrocarbons (TRH) and is in compliance with Project approval conditions before it can be used for dust suppression or discharged into the environment.<br><br>Water quality monitoring. Water quality will be monitored in the freshwater streams to determine if separation from potentially contaminated streams has been effective.<br><br>The CONTRACTOR will provide details, incidents and data to the OWNER for any require regulatory reporting.<br><br>**Locations**<br>Oily water separator, oily water pond and all other hold ponds.<br><br>**Reporting:**<br>The CONTRACTOR will provide details, incidents and data to the OWNER for any require regulatory reporting. |

| Management Action | Management Target / Trigger Criteria | The CONTRACTOR Responsibility in achieving the Action & Target |
|---|---|---|
| needs. This measure will be implemented as part of the early works once the site's fillworks have been completed.<br>• Where practicable, water reuse opportunities will also be sought in other project areas.<br>• Written approval from the Contractor's HSSE Manager must be obtained prior to reuse or discharge to the environment. | | • Incidents and relevant information provided to the OWNER during Monthly Environmental Reporting.<br>• All information and data provided to the OWNER within the required timeframes where an exceedance of the threshold criteria is identified and/or non-compliance with the MS 1180 and/or EPBC 2018/8383. |

### 7.6 Wastewater Discharge and MUBRL Use

The Ministerial Statement 1180 Condition 1 requires the Project comply with the following operational limits:

- 20 GL/yr. (including excess treated wastewater) discharged into the existing Water Corporation Multi-User Brine Return Line.

During construction, where the CONTRACTOR require access to the MUBRL, the above limit must be complied with. The wastewater acceptance criteria are regulated by the MUBRL licensing conditions (Ministerial Statements 567 and 594) and the ANZECC (2000) at 99% species protection guidelines. In addition, wastewater system basis of design will ensure that saline water will comply with, or be better than, the Water Corporation Ministerial conditions (refer to the MS 594) which are reflected in the Water Corporation Technical Compliance Advice Bulletin Ref. PM20992155 (22 Feb 2019).

No wastewater will be discharged on to, or off site, without written approval of the Environment and Heritage Manager. All proposed discharge into the MUBRL should be approved during consultation with the Water Corporation prior to construction.

If discharging wastewater to the MUBRL, the following conditions will apply:

- Any discharge to the Water Corporation MUBRL must comply with the conditions as per Ministerial Statements 567 and 594, including water quality standards that apply to the discharge (See Table 9-4).

Liquid waste which is not able to be treated on site, such as black and grey water generated during construction, will be removed off site by a licensed controlled waste contractor and disposed of at a licensed waste facility.

**Table 7-4 Wastewater Acceptance Criteria to MUBRL for the Project[8].**

| Parameter | Target |
|---|---|
| Water temperature | Effluent discharge temperature to be less than 2$^{o}$C above the inlet seawater temperature for 80% of thetime and exceeding a maximum limit of 5$^{o}$C above. |
| pH | >6.9 – <8.3 pH units |
| Conductivity (TDS) | <75 mS/cm |
| Oxidation-reduction potential | <228 mV |
| Ammonia | <1,700 µg/L |
| Turbidity | <63 NTU |
| Arsenic III | <140 µg/L |
| Arsenic V | <275 µg/L |
| Cadmium | <36 µg/L |
| Chromium III | <459 µg/L |
| Chromium IV | <8.5 µg/L |
| Cobalt | <61 µg/L |
| Copper | <11 µg/L |

| Parameter | Target |
|---|---|
| Lead | <134 µg/L |
| Mercury | <1.4 µg/L |
| Nickel | <427 µg/L |
| Selenium | <183 µg/L |
| Silver | <49 µg/L |
| Vanadium | <3,050 µg/L |
| Zinc | <419 µg/L |
| *E. Coli* | <13,000 MPN/100ml |
| Thermotolerant coliforms | <910 CFU/100 ml |

### 7.6.1 Intepretation

- The max 75 mS/cm conductivity is effectively 55,300 mg/L TDS (Water Corporation Technical note).
- The max 1,700 µg/L Ammonia is approximately equivalent to 80-85 kg/d at expected outflows.
- The E. coli and Thermotolerant coliforms relate to black and grey wastewater which will be treated in a typical pre-treatment package unit to ensure that an acceptable water quality is achieved, for recycling and reuse on site.
- Seawater is slightly alkaline, and the pH is managed with acid addition, offset by traces of ammonia water.
- From Basis of Design (SNCL, 2019), the typical seawater composition is assumed as shown in Table 7-5:

**Table 7-5 Assumed Seawater Composition (with selected criteria)**

| Parameter | Unit | Seawater in | With 1.4 CoC[9] |
|---|---|---|---|
| Make-up temperature | C | 35 | 37 |
| pH | - | 8.1 | 6.9-8.3 |
| Copper | µg/L | <5 | <7 |
| Cadmium | µg/L | <0.004 | 0.004 |
| Chromium | µg/L | <0.15 | 0.15 |
| Mercury | µg/L | <0.001 | 0.001 |
| Zinc | µg/L | 0.12 | 0.16 |
| TDS | Mg/L | 39,600 | Ca 54,000 |
| Conductivity | mS/cm | 55.3 | Ca 74.8 |

[8] As per Water Corporation Technical Compliance Advice Bulletin Ref. PM20992155 (22 Feb 2019)

[9] 1.4 CoC refers to the cycling of seawater for cooling where cooling causes evaporation and an increase in brine salinity to a limit of approximately 1.4 times the original inlet seawater salinity

### 7.7 Spill Management

The OWNER's proposed approach to spill management throughout the Project has been assessed through the Part IV assessment process, and confirmation of the Confirmed Surface Water Management Plan. Additional management measures are outlined in the Erosion, Sediment and Surface Water Management Construction Sub-Plan, and the Hydrocarbons and Hazardous Substance Management Protocol, an attachment to the CEMP.

Spill management will broadly include:

- Accidental spills will be prevented where possible, and emergency response actions to remediate accidental spills will be enacted immediately upon discovery.
- Spill Contingency and Emergency Response Plans and Procedures will be developed and implemented to address environmental risks and potential impacts specifically related to the operational phase.
- Spill kits shall be maintained and kept in areas designated for refuelling activities and storage areas for dangerous goods.
- Spill response training shall be provided to personnel.
- Proper bunding and storage (110% containment) shall be provided for fuels and chemicals during construction.
- Equipment servicing will take place in designated areas. Field servicing will be undertaken in a manner that facilitates containment of all hydrocarbons and chemicals
- Containment bunds will be located around facilities such as vehicle servicing facilities, chemical / fuel storage areas and concrete batch plants will be designed to minimise flood water entry and be inspected on a regular basis.
- Management of hydrocarbons and hazardous substances (wastes, spills and storage) must be undertaken in accordance with the requirements of the CONTRACTOR Construction Environmental Management Plan (0000-ZA-E-09071) (CEMP) and the associated Hydrocarbons and Hazardous Substance Management Protocol; an attachment to the CEMP.
- Monitoring of the Project will include weekly spills and water quality checks.

### 7.8 Summary of Solid Liquid Waste Mitigation Measures

Solid & liquid waste at the Project sites (i.e., Site C, Site F, causeway, conveyor and Port) will be managed in accordance with the Project approval conditions and all measures stipulated in this Plan. The following general mitigation measures will apply to all areas.

**Table 7-6 Summary of Solid & Liquid Waste Mitigation Measures**

| Item No. | Factor | Requirement |
|---|---|---|
| 1. | Procurement | Adopt a procurement Policy which applies a proactive decision-making approach to product purchases by considering factors of environmental preferability. As far as practicable, minimize the use and purchase of consumable/disposable products. |

| Item No. | Factor | Requirement |
|---|---|---|
| 2. | Procurement | Establish and maintain a purchasing log of preferred products, including product alternatives. |
| 3. | Recycling | Endeavor to identify practicable recycling opportunities whenever they exist and commit to becoming involved in any viable regional recycling programs that are initiated. |
| 4. | Recycling | Seawater will be recirculated with a small component (approximately 3.5%) blown down and discharged off site via the MUBRL. |
| 5. | Recycling | Process condensate will be polished before being added back into the demineralised water and reused on site. |
| 6. | Recycling | Once the plant is operating and MUBRL blowdown established, the saline water pond will be analysed and should this be acceptable, blended back into the blowdown stream as a small addition, ensuring MUBRL discharge specifications are not compromised. |
| 7. | Recycling | In Site C, uncontaminated stormwater runoff will be collected in a sediment basin and used for dust suppression and other construction needs. |
| 8. | Waste Stream Separation | Identify recyclable or re-usable waste materials and segregate from other waste streams (controlled and putrescible) at the initial point of disposal via physical separation of bins and waste receptacles.<br>Signage will also be provided to indicate appropriate segregation of waste bins/receptacles. |
| 9. | Waste Stream Separation | Saline water (Brine) which does not meet the MUBRL discharge specification will be sent to the brine evaporation pond. Solid waste from this area will be removed off site by an appropriately licensed waste contractor and disposed of at a licensed waste facility, suitable for this waste's classification. |
| 10. | Waste Stream Separation | Wastes that are not suitable to be disposed into provided waste receptacles i.e., product liquids, incompatible materials, impacted soils etc. will be containerised separately. |
| 11. | Waste Stream Separation | During start-up, high salt concentration water (Brine) generated as part of the desalination plant can be discharged to two locations, depending on the salt content of the Brine stream:<br>• Brine from the desalination plant will normally be discharged to the MUBRL for offsite disposal after being diluted and mixed with the seawater blowdown stream from the plant cooling tower, which meets the discharge specifications; and |

| Item No. | Factor | Requirement |
|---|---|---|
| | | • Brine which does not meet the MUBRL discharge specification will be sent from the saline water pond to the saline evaporation pond. Solid waste from this pond will be removed off site by an appropriately licensed waste contractor/operator and disposed at a licensed waste facility. |
| 12. | Waste Stream Separation | Stormwater generated on site will be managed as two separate streams:<br>• Stormwater that could be contaminated by spills or leaks from process activities (first flush) will be directed to a dedicated sump and then pumped to the saline water pond for pre-treatment, prior to being discharged to the MUBRL or evaporated in an evaporation pond; and<br>• Uncontaminated stormwater will not be treated, but rather will be pumped directly from the stormwater holding pond into the seawater used for cooling on site. |
| 13. | Waste Stream Tracking | Quantify the volume of all individual waste streams of recyclable/re-useable materials diverted from the waste stream. All waste removed off-site will be recorded in a Waste Management and Tracking Register |
| 14. | Waste Storage | That liquid wastes will be securely stored in bunded areas that will contain leaks or spills from all containers and be located a minimum of 100m from any watercourse. |
| 15. | Waste Storage | That solid wastes will be stored in a way that does not attract vermin or native fauna. Bins and skips (with lids) will be labelled and maintained so as to hold the intended waste stream securely. |
| 16. | Waste Storage | All hazardous product areas will be bunded and contained in case of spillages. Bunded areas and containment facilities will be designed such that no contamination of the soil and natural groundwater is possible. |
| 17. | Spill Prevention | Spill response procedures will be developed, communicated to all Project Personnel and implemented across the site. Emergency response actions to remediate accidental spills will be enacted immediately upon discovery. |
| 18. | Spill Prevention | Spill kits shall be maintained and kept in areas designated for refueling activities and storage areas for dangerous goods. |
| 19. | Spill Prevention | Containment bunds will be located around facilities such as vehicle servicing facilities, chemical / fuel storage areas and |

| Item No. | Factor | Requirement |
|---|---|---|
| | | concrete batch plants will be designed to minimise flood water entry and spills and be inspected on a regular basis. |
| 20. | System Integrity | Drainage systems for hazardous product will be able resist the effects of corrosion and other harmful effects it may be exposed to |
| 21. | System Integrity | All drainage systems containing contaminated / hazardous effluent will be leak proof. |
| 22. | Waste Load Capacities | That the design of the wastewater management systems will be sufficient to handle the anticipated loads of the Project's peak number of construction and operational staff, as well as having sufficient capacity to allow for routine maintenance or equipment breakdowns without causing the release of partially treated wastewater into the environment. |
| 23. | Waste Receptacles | General putrescible refuse (fitted with secure lids) will be made available for easy access within, office, workshop and plant areas. |
| 24. | Waste Receptacles | Office, workshop, other applicable plant areas and/or the central waste management facility will have designated bins or stockpiles for recyclable or re-useable materials. |
| 25. | Water Treatment | That the Black / grey water from permanent staff amenities including toilets, shower, washing and kitchen facilities will be treated via a sewage treatment plant prior to discharge to the Water Corporation's MUBRL, and not discharge separately to the MUBRL. This treated water will be recycled and re-used wherever practical, with any excess in those streams forming part of the saline water that is ultimately disposed of to the MUBRL. |
| 26. | Water Treatment | To ensure that any discharge to the Water Corporation's MUBRL must comply with the conditions, including water quality standards, in Ministerial Statements 567 and 594 under Part IV of the EP Act (see Table 6-1). |
| 27. | Water Treatment | If not used on site, all stormwater proposed for discharge will first be contained in an appropriately lined sediment basin, to allow sediment to settle out |
| 28. | Off-site Waste Removal | The brine evaporation pond will have to periodically be cleaned of sediment and residual salts. The residual solids will be handled as a controlled waste in accordance with the *Environmental Protection (Controlled Waste) Regulations 2004.* |
| 29. | Off-site Waste Removal | Septic waste is to be pumped into h statutory requirements and sent to designated (off-site) disposal location. a licensed liquid waste transport vehicle and taken to a licensed facility. |

| Item No. | Factor | Requirement |
|---|---|---|
| 30. | Off-site Waste Removal | Waste oil to be stored on-site in a secure bunded area and periodically removed by a licensed waste contractor to a licensed waste facility. |
| 31. | Off-site Waste Removal | Solid, liquid and controlled wastes not treated or reused on site will be removed off site by a licensed controlled waste carrier. |
| 32. | Off-site Waste Removal | To ensure that facilities used for the receiving of waste from the site are appropriately licensed to accept the classified waste type. |
| 33. | Servicing and Washdown | Equipment servicing and wash-downs will take place in designated areas. Field servicing will be undertaken in a manner that facilitates containment of all hydrocarbons and chemicals. All facilities and operations should be compatible with the recommendations in DWER WQNP 28 Mechanical Servicing and Workshops & WQPN 68 Mechanical Equipment Wash-down. |
| 34. | Servicing and Washdown | Mobile equipment/vehicles refueling during construction will only occur in designated bunded refueling areas. |
| 35. | Concrete Wastewater | Management of concrete wastewater as per the Concrete Batching Management Protocol (Appendix M of the CEMP). |
| 36. | Hydrocarbons and Hazardous Substances | Hydrocarbons and hazardous substances will be managed in accordance with the Hydrocarbons and Hazardous Substances Management Protocol (45826-HSE-PL-G-1009). |
| 37. | Compliance | That all requirements of PCF-PD-EN-SWMP Surface Water Management Plan related to contaminated surface water are to be implemented. |
| 38. | Training | Employees and CONTRACTOR inductions to outline key aspects of the SLWMP, including waste definitions, recyclables, reuse and disposal. |
| 39. | Monitoring | During construction a monitoring and maintenance schedule, approved by the Contractor's Environment and Heritage Manager, is to be established based on the specifics of the wastewater management system chosen |
| 40. | Monitoring | Monitoring of the Project will include weekly spills and water quality checks. |

## 8 MONITORING

The purpose of monitoring during construction is to assess the performance, collect data and evidence for both the CONTRACTOR purposes and to provide to the OWNER for their reporting purposes. The OWNER is responsible for the overall monitoring of the effectiveness of the management actions however the monitoring that will be carried out during

construction by the CONTRACTOR to support the OWNER has been included within Table 8-1.

**Table 8-1 Monitoring Requirements**

| Monitoring Aspect | Monitoring Location | Parameters | Brief Methodology | Frequency | CONTRACTOR data collection method |
|---|---|---|---|---|---|
| Surface water quality relevant to Supratidal flats | Surface water sampling Group:<br>SW1 – Site C<br>SW2 – Site C<br>SW3 – Site C<br>SW4 – Site F<br>SW5 – Site F<br>SW6 – Site F<br>SWDC1 – Site C<br>SWDC2 – Site C<br>SWDC3 – Site F | • Metals<br>• Nutrients and physical Parameters<br>• Ethanolamines<br>• TRH<br>• BTEXN<br>• PAH | Measure physicochemical water quality at the surface water locations and collect samples, if surface water is present. Note observations if no surface water is present at the time of survey.<br>All sampling is to be undertaken in accordance with relevant guidelines and standard operating procedures. | Monthly in construction zones. | Monitoring submission of results to the laboratory and event reporting following the receipt of results, which will include comparison against baseline and criteria. |
| Rainfall | Within the PDE | Rainfall (mm) | Rainfall gauge | Daily (to associate potential trends of groundwater, surface water variation with rainfall) | Rainfall data will be used to assist in inferences made in any report that requires an assessment / description of the state of the environment to infer causes for exceedances, etc. |

| Monitoring Aspect | Monitoring Location | Parameters | Brief Methodology | Frequency | CONTRACTOR data collection method |
|---|---|---|---|---|---|
| Surface Water Discharge Points (excluding MUBRL) | Discharge structures DS01, DS02 and DS03 from sites 'C' and 'F'.<br>Site 'C' stormwater collection pond.<br>Site 'F' stormwater collection pond. | Surface Water Quality[1]<br>- pH<br>- DO<br>- Turbidity<br>- Floatable matter<br>- Settleable matter<br>- Toxicants<br>- Nutrients | Field measurements using calibrated instruments.<br><br>Field sample and laboratory analysis (analysis suites) | During / after rainfall events | Monitoring submission of results to the laboratory and event reporting following the receipt of results, which will include comparison against baseline and criteria. |
| Surface Water Hold Points | Oily water treatment unit.<br>Saline evaporation pond.<br>Saline water pond.<br>Cooling tower basin.<br>Site 'C' stormwater collection | Water Elevation<br>Surface Water Quality[1]<br>- pH<br>- DO<br>- Turbidity<br>- Floatable matter<br>- Settleable matter<br>- Toxicants<br>- Nutrients | Field measurements using calibrated instruments.<br><br>Field sample and laboratory analysis (analysis suites) | During / after rainfall events | Monitoring submission of results to the laboratory and event reporting following the receipt of results, which will include comparison against baseline and criteria. |

| Monitoring Aspect | Monitoring Location | Parameters | Brief Methodology | Frequency | CONTRACTOR data collection method |
|---|---|---|---|---|---|
| | pond.<br>Site 'F' stormwater collection pond. | | | | |
| Surface water diversion channels | Diverted run-off stream from sites 'C' and 'F'.<br>Clean run-off stream from site 'C'.<br>Clean run-off stream from site 'F'.<br>All other diversion channels and trenches. | Water Elevation<br>Sedimentation / erosion<br>Surface Water Quality[1 & 2]<br>Surfactants (detergents) | Field measurements using calibrated instruments.<br><br>Field sample and laboratory analysis (analysis suites)<br>Water Elevation Methods:<br>• Pressure transducers<br>• Peak Level indicators | During / after rainfall events | Monitoring submission of results to the laboratory and event reporting following the receipt of results, which will include comparison against baseline and criteria. |
| Oily water pond, hydrocarbon storage areas, Wash down facilities. | Oily water treatment unit.<br>DG's and hydrocarbon storage areas.<br>All wash down facilities. | Surface Water Quality[2]<br>- pH<br>- DO<br>- Turbidity<br>- Floatable matter<br>- Settleable matter | Inspections.<br><br>Field measurements using calibrated instruments.<br><br>Water Elevation | Weekly spills and water quality checks.<br>Water elevation monitored during / after rainfall events | Monitoring submission of results to the laboratory and event reporting following the receipt of results, which will include comparison against baseline and criteria. |

| Monitoring Aspect | Monitoring Location | Parameters | Brief Methodology | Frequency | CONTRACTOR data collection method |
|---|---|---|---|---|---|
| | | - Toxicants<br>- Nutrients | Methods:<br>• Pressure transducers<br>• Peak Level indicators | | |
| Sediment basins | All water storage and treatment ponds. | Quantity of sediment in basins not to exceed 30% as indicated by depth pegs. | Visual inspection of depth pegs. | Weekly | Monitoring and event reporting following validation of results. |
| MUBRL | Saline water pond Pipeline monitoring location prior to MUBRL receival. | Acceptance Criteria as per MS 594 and 567 (refer to section 4.3 of this Sub-Plan). Brine Content not to exceed 55, 000mg/L TDS, Temperature must be within 2°C of ambient seawater temp 80% of the time, and always less than 5 °C of ambient seawater temp. Volume of discharge must be below 54.79 ML/day. [3] | Water quality inspections prior to MUBRL release.<br><br>Field measurements using calibrated instruments.<br><br>Volume monitored through meter at the discharge point. | Weekly | Monitoring and event reporting following validation of results. NB: reporting may be required where there is an exceedance or incident in accordance with the MS 0567 (Water Corporation).<br><br>Immediately notify the OWNER Environment and Heritage Manager and provide with any required information that may be required to pass onto the Water Corporation. |

*1 Water Quality Protection Note 11 - Guidelines for Mining and Mineral Processing – Mine dewatering (Water and Rivers Commission 2000)2 Water Quality Protection Note 68– Mechanical equipment wash down (DoW, 2013))*

*3 Ministerial Statement No. 0567. Statement that a Proposal may be Implemented – Desalinated Water and Seawater Supplies Project Burrup Peninsula, Shire of Roebourne.*

*4 See Attachment A of SWMP. Project Surface Water Schematic and Plot Plans, for monitoring locations and drainage context.*

### 8.1 Solid & Liquid Waste

The following monitoring and reporting must be undertaken:

- Annual review of preferred products log to verify assessment of product alternatives and preference to 'green' products were practicable and verify minimisation of disposable products.
- Procurement/Logistics Manager to ensure following:
  - That all purchasing/procurement staff are trained in Procurement Policy
  - Preferred products log has been established and maintained.
  - Ensure annual review of preferred products log has been conducted.
  - Site bins will be included in weekly inspections, check for appropriate provision of receptacles for recyclables/putrescible waste and signage.
- Environmental/Logistics Manager to ensure following:
  - Monitor monthly volumes of waste streams, all recycled.re-used materials
  - Induction and training modules on types of waste and appropriate disposal
  - Ensure annual review has been completed.
  - Audits for compliance that controlled wastes are being disposed in accordance with Controlled Waste Regulation.

### 8.2 Wastewater

The following monitoring and reporting need to be undertaken:

- Treatment systems testing should reliably achieve design quality in more than 90% of samples in a 12- month period. Performance testing should be routinely conducted using the designers'/suppliers' recommendations.
- Adequate training of Project staff and contractors in the practices designed to nullify or minimise the loss of contaminated wastewater into the environment. Records and results of the monitoring program should be retained on-site for a minimum of two years for inspection or as requested by regulators.
- Project staff shall routinely monitor wastewater quality, assessing the concentration of contaminants to ensure approved/licensed performance. All monitoring should be conducted in accordance with Australian Standards 2031 and 5667 by appropriately trained personnel.
- Cleaning of storage ponds when the accumulated sediment has reduced the basin capacity by more than 30%, as indicated by depth pegs.
- Approval from the Environment and Heritage Manager must be obtained prior to recirculation, reuse/recycling or discharge.

**Table 8-2 Indicative Wastewater Discharge Criteria (Water Quality Protection Note. 68, 2013).**

| Component | Limiting Criteria |
|---|---|
| Salinity (electrical conductivity) | 1800 µS/cm (maximum)[1] |
| Surfactants (detergents) | 5 mg/L (maximum) |
| Total Petroleum Hydrocarbons | 15 mg/L (maximum) |

| | |
|---|---|
| BTEX (benzene, toluene, ethyl benzene and xylene) | 10 µg/L (cumulative maximum) |
| Other toxic soluble contaminants | Ten times the guideline criteria or investigation trigger for local water values as published in the relevant National water quality management strategy guideline criteria to protect local water resource values (references 1a and 1b). |

*[1]Limiting criteria for salinity not applicable after confirmation by Coffey (2022b) of the hypersaline nature of groundwater on site.*

### 8.3 MUBRL Discharge Quality Criteria

Any discharge to the Water Corporation MUBRL must comply with the conditions as per Ministerial Statements 567 and 594, including water quality standards that apply to the discharge. The CONTRACTOR will be required to monitor discharges into the MUBRL. This has been detailed within the OWNER SLWMP (PD-EN-SLWMP).

The Water Corporation currently has environmental approval (Ministerial Statement 567) to discharge brine from a desalination process with an elevated salinity (approximately 38% above ambient) and temperature (typically 2 Co above ambient). A 40m mixing zone at the ocean outfall associated with the MUBRL, enables the ANZECC/ARMCANZ (2000) environmental quality criteria for salinity and temperature to be met. The Discharge acceptance criteria has been provided in Table 8-3 below.

Two monitoring protocols will be incorporated:

- *Continuous, in-stream, water quality monitoring for process control of relevant parameters.*

This monitoring is not undertaken by a NATA accredited organisation and does not necessarily implement recognised regulatory analytical techniques. In developing its Wastewater Discharge Procedure, the Project will investigate the feasibility and practicability of upgrading such in-stream monitoring to standard suitable for regulatory purposes to ensure wastewater at boundary discharged to the MUBRL meets Water Corporation acceptance criteria.

- *Campaign monitoring in advance of planned discharge to the MUBRL.*

Prior to discharge of wastewater to the MUBRL, wastewater is held in a holding basin with discharges planned in advance. These discharges will be undertaken in accordance with a wastewater discharge procedure to be developed under this Solid & Liquid Waste Management Plan prior to construction and usage of the MUBRL. The procedure will ensure that sampling is undertaken sufficiently in advance of planned discharge and to relevant Australian Standards, to enable analysis at a NATA accredited facility and using relevant USEPA (or suitable alternative) analytical techniques. If this monitoring indicates that MUBRL acceptance criteria are not met, the wastewater will be transferred for disposal by evaporation in the Project saline evaporation ponds.

**Table 8-3 MUBRL Discharge Criteria**

| Parameter | Target |
|---|---|
| Water temperature | Effluent discharge temperature to be less than 2C° above the inlet seawater temperature for 80% of the time and exceeding a maximum limit of 5C° above. |
| pH | >6.9 – <8.3 pH units |
| Conductivity (TDS) | <75 mS/cm |
| Oxidation-reduction potential | <228 mV |
| Ammonia | <1,700 µg/L |
| Turbidity | <63 NTU |
| Arsenic III | <140 µg/L |
| Arsenic V | <275 µg/L |
| Cadmium | <36 µg/L |
| Chromium III | <459 µg/L |
| Chromium IV | <8.5 µg/L |
| Cobalt | <61 µg/L |
| Copper | <11 µg/L |
| Lead | <134 µg/L |
| Mercury | <1.4 µg/L |
| Nickel | <427 µg/L |
| Selenium | <183 µg/L |
| Silver | <49 µg/L |
| Vanadium | <3,050 µg/L |
| Zinc | <419 µg/L |
| *E. Coli* | <13,000 MPN/100ml |
| Thermotolerant coliforms | <910 CFU/100 ml |

The CONTRACTOR will monitor water quality parameters sent to the MUBRL in accordance with Table 7-4 during construction of the Project. All industries utilising the MUBRL are required to meet the requirements of the Water Corporation's Technical Compliance Advice Bulletin Ref. PM20992155 (22 February 2019), which is set out in the Table 7-4 of this document. Any exceedances of the acceptance criteria will be documented by the CONTRACTOR team and sent to the OWNER's Environment and Heritage Manager, to then notify the Water Corporation as soon as reasonably practicable.

### 8.4 Triggers & Thresholds

Where a trigger or threshold stated within Section 9.5 is exceeded the actions presented in Table 8-4 will be enacted. Note that water quality triggers have been included, since wastewater not properly treated or managed has the potential to alter water quality.

**Table 8-4 Trigger & Threshold Level Actions**

| Aspect | Trigger | Reporting / Response to the OWNER by the CONTRACTOR Environmental Team | Trigger Level Action |
|---|---|---|---|
| Surface Water & Groundwater Quality | Exceedance of Surface Water quality or Groundwater quality trigger levels | • Immediately notify the OWNER's Environmental Representative, providing details to be used to address the cause or detail the occurrence of the Trigger exceedance.<br>• Implement Trigger Level Actions 1 through 7 where it is under the CONTRACTOR control.<br>• Provide any information to the OWNER Environmental Representative that the OWNER may require when preparing any report to the CEO as per *Confirmed SWMP (PCF-PD-EN-SWMP).* | 1. Confirm validity of the result (i.e., review sampling procedures).<br>2. Review results from nearby (upstream and downstream) monitoring locations.<br>3. Investigate to identify the cause(s) of the exceedance(s).<br>4. Investigate if the cause of change is due to construction of the Project. If results are assessed to be likely due to construction, the exceedance is considered to be project-attributable, and the trigger criteria are considered to have been exceeded.<br>5. If the results are assessed as likely to be due to construction activities (i.e. solid/liquid wastes), then resample affected monitoring location as soon as practicable and review the result no later than a week following resampling.<br>6. If both rounds of monitoring show trigger levels have been exceeded increase frequency of monitoring in order to further assess changes.<br>7. Identify additional measures or alternative construction methodologies to prevent the trigger level being exceeded in the future and to prevent reaching threshold. |

| Aspect | Trigger | Reporting / Response to the OWNER by the CONTRACTOR Environmental Team | Trigger Level Action |
|---|---|---|---|
| Surface Water Quality | Exceedance of Surface Water quality Threshold levels | • Immediately notify the OWNER's Environmental Representative, providing details to be used to address the cause or detail the occurrence of the Trigger exceedance.<br>• Comply with Conditions 8-5(2), 8-5 (3) and 8-5 (4) of MS 1180 in consultation with the OWNER's representative, including doing all things required by the OWNER's Environmental Representative for this purpose – (Threshold Level Actions 1 through 6).<br>• Provide all information to the OWNER | 1. Confirm validity of the result (i.e., review sampling procedures, review dataset and baseline data).<br>2. Review results from nearby (upstream and downstream) monitoring locations.<br>3. If results are assessed as likely to be due to construction and improper wastewater management on the proposal, resample affected monitoring location as soon as possible (within one day) to verify the result.<br>4. Where construction of the proposal is found to contribute to the exceedance, halt relevant activities. Remediate, where necessary.<br>5. Identify additional measures and or changes to construction methods where required to prevent the threshold level being exceeded in the future (adaptive management)<br>6. Notify the CEO[1] within seven (7) days of the exceedance being identified where it was due to construction activities.<br>7. Provide information to the CEO[1] to determine potential environmental harm or alteration of the environment that occurred due to the threshold criteria being exceeded.<br>8. Implement the management and/or contingency actions within seven days of the exceedances being reported and continue implementation of those actions until the CEO has confirmed by notice in writing that it has been demonstrated that the threshold criteria are being met and implementation of the management and/or contingency actions are no longer required.<br>9. Provide a report to the CEO[1] within 21 days from the date of the exceedance being identified. |

| Aspect | Trigger | Reporting / Response to the OWNER by the CONTRACTOR Environmental Team | Trigger Level Action |
|---|---|---|---|
| | | Environmental Representative within a timely manner to allow the OWNER to report the exceedance in accordance with Condition 8-5 (1) of MS 1180.<br>• Provide all information required by the OWNER's Environmental Representative within a timely manner to allow the OWNER to prepare a report needed in accordance with Condition 8-5 (5) of MS 1180 (Threshold Level Action 9). | |
| Waste management actions associated with the | Refer to Table 9-3. | • Immediately notify the OWNER's Environmental Representative, providing details to be | 1. Implement the management actions or contingencies required by condition 5-3 (8) in relation to the exceedance within seven days of the exceedance being reported to the CEO and DAWE by the OWNER.<br>2. Continue the implementation of these until the CEO has confirmed by notice in writing to the OWNER that it has been demonstrated that the |

| Aspect | Trigger | Reporting / Response to the OWNER by the CONTRACTOR Environmental Team | Trigger Level Action |
|---|---|---|---|
| Confirmed TSMP (as per Table 9-3). | | used to address the cause or detail the occurrence of the Trigger exceedance, so that the OWNER can report the exceedance to CEO and DAWE within seven days of the exceedance being identified.<br>• Comply with the Condition 5-6 of the MS 1180.<br>• Implement Trigger Level Actions 1 through 6 where it is under the CONTRACTOR control.<br>• Provide any information to the OWNER Environmental Representative that the OWNER may require when preparing any report | threshold criteria are being met and implementation of the management and/or contingency actions are no longer required.<br>3. Investigate to determine the cause of the threshold criteria being exceeded and provide information to the OWNER as required.<br>4. Investigate to provide information to the OWNER for the CEO to determine potential environmental harm or alteration of the environment that occurred due to threshold criteria being exceeded.<br>6. Provide a further report to the OWNER who will provide the CEO and the DAWE with the report within 21 days of the exceedance being reported as required by condition 5-6(1) which report shall include:<br>(a) details of management and/or contingency actions implemented.<br>(b) the effectiveness of the management and/or contingency actions implemented against the threshold criteria.<br>€ the findings of the investigations required by conditions 5-6(3) and 5-6(4).<br>(d) measures to prevent the threshold criteria being exceeded in the futur€(e) measures to prevent, control or abate the environmental harm which may have occurred; and<br>(f) justification of the threshold criteria remaining, or being adjusted based on better understanding, demonstrating that outcomes will continue to be met. |

Notes: 1) All notification / communication to CEO (DWER) is officially by the OWNER unless they otherwise delegate this role to the CONTRACTOR in writing.

### 8.5 Adaptive Management Actions

Adaptive management will be implemented to learn from the implementation of management measures, monitoring and evaluation against the environmental criteria, to meet the condition environmental objectives more effectively. The following potential adaptive management actions shall be implemented by the CONTRACTOR Environmental Team to ensure adaptive management in accordance with the OWNER requirements and the Confirmed SWMP as they relate to solid and liquid waste management (PCF-PD-EN-SWMP).

**Table 8-5 Adaptive Management Actions**

| Event | Action taken by the CONTRACTOR |
|---|---|
| Exceedance of trigger or threshold criteria for groundwater or surface water quality or level. | 1. Inform the OWNER.<br>2. Determine/investigate cause/source and provide information to the OWNER.<br>3. Improve and implement additional trigger level actions or threshold contingency actions as necessary in consultation with the OWNER.<br>4. Monitor the success of remedial actions.<br>5. Report success back to the OWNER. |
| Identification of contaminated sediment basin. | 1. Notify the OWNER.<br>2. Determine/investigate cause/source.<br>3. Remove contaminated sediment and clean basin.<br>4. Monitor basins within the vicinity of the contaminated basin.<br>5. Monitor sediment at surface water site locations within the vicinity of the contaminated basin.<br>6. Improve and implement additional trigger level actions or threshold contingency actions as necessary in consultation with the OWNER.<br>7. Monitor the success of remedial actions.<br>8. Report success back to the OWNER. |

### 8.6 Proposal Changes

In the event there are relevant changes to activities which conflict with either management actions, targets or thresholds, then the CONTRACTOR shall notify the OWNER immediately with all the relevant information. Refer to the CEMP (0000-ZA-E-09071) for further details.

## 9 REGULATORY REPORTING

### 9.1 Exceedance & Notifiable Incident Reporting

In context of Project Ceres a notifiable incident is any incident where a non-compliance of the MS 1180 conditions or EPBC 2018/8383 conditions occurs. The CONTRACTOR is

required to notify the OWNER immediately or as soon as practicable to ensure regulatory compliance can be adhered to by the OWNER.

Regulatory reporting timeframes and the reporting and investigation process has been detailed in the CEMP (0000-ZA-E-09071). All notifiable incidents will be classified as Moderate to Catastrophic and the reporting of any incident which could be considered "notifiable" should be reported to the OWNER as per the CEMP (0000-ZA-E-09071).

Notifiable incidents for the Project are included within Table 9-1.

**Table 9-1 MS 1180 CONTRACTOR Exceedance & Notifiable Incident Reporting**

| Condition (s) / Approval / License | Notifiable Incident | CONTRACTOR to provide Notification to: | Reporting to Regulator timeframe (OWNER Responsibility) | Further Reporting to Regulator |
|---|---|---|---|---|
| MS 1180 | Any non-compliance with any conditions in MS 1180 | OWNER Environmental & Heritage Manager who will notify DWER. | Written notification within seven Days | NA |
| EPBC 2018/8383 | Any incident or non-compliance with the conditions; or non-compliance with the commitments made in plans (TSMP, AQMP, CHMP). | OWNER Environmental & Heritage Manager immediately who will notify DCCEEW. | Written notification within seven Days | Provide supporting information for the OWNER to provide to DCCEEW within seven days. |
| Condition 4-8 (MS 1180) | Any Exceedance of threshold criteria specified in a Confirmed Flora Management Plan | OWNER Environmental & Heritage Manager who will notify DWER and DCCEEW | Written notification within seven Days | The CONTRACTOR will provide the OWNER with information required for the OWNER to provide a further report within 21 days of the exceedance |
| Condition 5-6 (MS 1180) | Any Exceedance of threshold criteria specified in the Confirmed Fauna Management | OWNER Environmental & Heritage Manager who will notify DWER and DCCEEW | Written notification within seven Days | |

| Condition (s) / Approval / License | Notifiable Incident | CONTRACTOR to provide Notification to: | Reporting to Regulator timeframe (OWNER Responsibility) | Further Reporting to Regulator |
|---|---|---|---|---|
| | Plan or Confirmed Threatened Species Management Plan | | | |
| Condition 6-7 (MS 1180) | In the event that monitoring required by condition 6-6 indicates an exceedance of trigger levels. | OWNER Environmental & Heritage Manager who will notify DWER | Written notification within seven Days | |
| Condition 8-5 (MS 1180) | Any exceedance of threshold criteria specified in the Confirmed Surface Water Management Plan | OWNER Environmental & Heritage Manager who will notify DWER | Written notification within seven Days | |
| Condition 8-5 (MS 1180) | In the event the following environmental objective is not achieved: maintain the hydrological regimes and quality of surface water so that environmental values are protected | OWNER Environmental & Heritage Manager who will notify DWER | Written notification within seven Days | The CONTRACTOR will provide the OWNER with information required for the OWNER to provide a further report within 21 days of the non-achievement |

## 9.2 MS 1180 Annual Reporting

The CONTRACTOR will prepare a Report for the OWNER that will follow any format required by the OWNER to ensure that Compliance Assessment Reporting (CAR) can be carried out

as per the Confirmed Compliance Assessment Plan (CAP) and associated Audit Table to the CAP.

Refer to the CONTRACTOR CEMP (0000-ZA-E-09071) for the Reporting format required for the annual CAR.

### 9.3 EPBC Non-Compliance

**Table 9-3 EPBC 2018/8383 Non-conformance Reporting**

| EPBC 2018-8383 Condition | Reporting non-compliance | Timeframe & Action by CONTRACTOR |
|---|---|---|
| 18 | The approval holder must notify the Department in writing of any: **incident; non-compliance with the conditions; or non-compliance with the commitments made in plans.**<br>The notification must specify:<br>a. any condition which is or may be in breach;<br>b. a short description of the incident and/or non-compliance; and<br>c. the location (including co-ordinates), date, and time of the incident and/or non-compliance. In the event the exact information cannot be provided, provide the best information available. | The CONTRACTOR will notify the OWNER **immediately** to ensure the OWNER can notify DCCEEW within **two (2) days** of becoming aware of the incident or non-compliance.<br>The CONTRACTOR shall provide the OWNER with the specified information required during the notification to the DCCEEW. |
| 19 | The approval holder must provide to the Department the details of any incident or non-compliance with the conditions or commitments made in plans, specifying:<br>a. any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future.<br>b. the potential impacts of the incident or non-compliance; and<br>c. the method and timing of any remedial action that will be undertaken by the approval holder. | The CONTRACTOR will notify the OWNER **immediately** to ensure the OWNER can notify DCCEEW as soon as practicable and no later than seven (7) business days after becoming aware of the incident or non-compliance.<br>The CONTRACTOR shall provide the OWNER with the specified information required by the DCCEEW. |

### 9.4 EPBC Annual Reporting

The CONTRACTOR will be required to provide the OWNER Environmental Representative with any relevant and accurate records, data, information, or documentation during construction substantiating all activities in its control associated with or relevant to the conditions of EPBC Approval 2018/8383 that will support the OWNER's requirement to provide the DCCEEW with an Annual Compliance Report in accordance with Condition 17 of the EPBC Approval 2018/8383. In relation to this Sub-Plan the, reporting against Condition 4 (b) of the EPBC approval.

The first Annual Compliance Report is required by DCCEEW 12-months following the commencement of the Project. The CONTRACTOR should provide the required records within two months of the 12-month anniversary of the commencement of the Project construction (defined as any vegetation clearing or construction of infrastructure, excluding construction fences, signage or geotechnical investigations where no vegetation clearance is required).

## 10 ENVIRONMENTAL REPORTNG

The CONTRACTOR is responsible for preparing a Monthly Environment Report for the OWNER during construction. Any monitoring data, observations, incidents, and non-conformances should be reported to the OWNER in accordance with the CEMP, PEMP and supporting plans. The potential reporting aspects relating to this plan have been included in Table 11-2 Environment Incident Notification and Reporting to OWNER below.

Any solid or liquid waste and wastewater incidents resulting in offsite impacts will be reported to the Environment and Heritage Manager (or their representative) as soon as possible.

Any trigger exceedances regarding waste streams sent to the MUBRL will be reported to the Environment and Heritage Manager immediately upon identification, to then notify the Water Corporation as soon as reasonably practicable.

The reporting to be conducted for this construction issued SLWMP are identified in Table 10-1 below.

**Table 10-1 Reporting Requirements**

| Aspect | Responsibility | Authority | Frequency |
|---|---|---|---|
| Any activity resulting in the unlawful/ unauthorised discharges of solid and liquid wastes. | HSSE Manager | DAWE / DWER | As soon as reasonably practicable |
| Solid or liquid waste and wastewater incidents resulting in offsite impacts | Environment and Heritage Manager | DAWE / DWER | As soon as reasonably practicable |

| Aspect | Responsibility | Authority | Frequency |
|---|---|---|---|
| Monitoring reports | HSSE Manager | DAWE / DWER | Annually (as part of annual compliance reporting) |
| Waste Management and Tracking Register | HSSE Manager | DAWE / DWER | Annually (as part of annual compliance reporting) |
| Environmental incident register | HSSE Manager | DAWE / DWER | Annually (as part of annual compliance reporting) |
| Training and induction records | HSSE Manager | DAWE / DWER | Annually (as part of annual compliance reporting) |

### 10.1 Sub-contractor Reporting

All subcontractors working under the CONTRACTOR during the construction works, will be required to provide the CONTRACTOR HSSE Deputy or Environmental delegate with a monthly report. The subcontractor report will be provided to the CONTRACTOR on the same template and format that the CONTRACTOR report to the OWNER on (TBC) with all information as stated in the CEMP that is relevant to the sub-contractor. The Subcontractor reports will be due on the last day of each month to allow the CONTRACTOR to compile relevant data and reports to the OWNER Environment and Heritage Manager within the first week of the new calendar month.

It is the responsibility of the Sub-contractor to notify the CONTRACTOR with all relevant information and data where an incident or non-compliance against a confirmed management plan or a condition within the MS 1180, EPBC 2018/8383 and s. 18 consent occurs. Any exceedance of a threshold as detailed within the Confirmed Plans must be reported to the CONTRACTOR HSSE Deputy immediately to allow for the required regulatory reporting within the relevant timeframes. For further information refer to the CEMP.

*NB: reporting dates will be confirmed prior to construction.*

## 11 INCIDENT MANAGEMENT

Incident Management is detailed in the CEMP.

### 11.1 Incident Management & Response

The process outlined in section 11.2 below will be followed by all CONTRACTOR and Subcontractor personnel if an environmental incident occurs. This is an OWNER based Incident response and takes precedence over the CONTRACTOR response, unless the CONTRACTOR response is more stringent, in which case the CONTRACTOR response will be applied by the Project team. The Incident Management and Reporting must still follow the Clough CMS to ensure compliance with the CMS and the relevant ISO certifications.

Unless otherwise required by legislation or approval and license conditions, all regulatory reporting (incident related) for the Project will be made through the OWNER, rather than directly to the Regulator. This will include all notifications of reportable environmental incidents (i.e., notifiable incidents Table 9-1) to regulatory bodies. Sub-contractors should report to the CONTRACTOR and provide all relevant information, evidence, investigations etc to the CONTRACTOR to properly report to the OWNER. See the CEMP for regulatory reporting requirements.

### 11.2 Incident Notification & Reporting

All environmental incidents and near-misses that occur on the Project, including major non-compliances with Project procedures that have the potential to result in environmental impacts; regardless of its scale or nature, CONTRACTOR's HSSE Manager (or their representative) is to be notified of the incident as soon as possible. Refer to the Incident Reporting Procedures of HSSE Incident Notification, Investigation and Reporting Procedure (CORP-HSE-PR-G-0066) and the HSSE Risk Matrix (CORP-HSE-FO-G-0036) included in Appendix C-1 of the CEMP.

Environmental incidents and near misses are to be reported to the CONTRACTOR HSSE Manager or other Project environmental personnel within one hour of occurrence / detection. The CONTRACTOR HSSE Manager or nominated CONTRACTOR Environmental Representative will inform the OWNER's Environmental Representative of the incident, and actions taken to mitigate impact to the environment.

The OWNER will be notified as soon as practicable where a Moderate to Catastrophic incident has occurred. In the case of minor incidents (Insignificant to Minor) the OWNER will be informed by end-of-shift or at the beginning of the next shift. Reporting to the OWNER must occur within 24 hours.

Formal, documented reporting of incidents will be completed using the Incident Injury Report Form (CORP-HSE-FO-G-0035) and InControl (CONTRACTOR's electronic incident management system). An Incident Injury Report Form will be submitted to the OWNER for all environmental incidents. The CONTRACTOR will submit an Incident Injury Report Form within the timeframes specified in Table 11-2 below. Access to InControl can be organised for the OWNER upon request.

In the event that an environmental incident results in the offsite discharge of contaminants to the environment that cannot be satisfactorily rectified within 24 hours, the OWNER, in consultation with the CONTRACTOR HSSE Manager or Environmental Lead, will contact the appropriate regulatory agencies.

Where the incident occurs during the Subcontractor oversight, the Subcontractor is to complete an incident report form and provide it to the CONTRACTOR's HSSE Manager or Environmental Lead as soon as practicable after the incident.
Depending on the nature of the incident, reporting and notification of incidents may need to be provided to external agencies or Regulators.

All incidents will be investigated at a level commensurate with the actual or potential consequence. Incidents with an actual or potential consequence of high and above, including

those that breach regulations, license or contractual conditions will include the CONTRACTOR in the incident's investigation.

**Table 11-2 Environment Incident Notification and Reporting to OWNER**

| Incident severity | Notification | Reporting |
|---|---|---|
| Moderate to Catastrophic | As soon as practicable | Within 24 hours of the incident or event occurring |
| Insignificant to Minor | By end-of-shift / beginning of next shift | Within 48 hours of the incident occurring or having been detected |

The Incident Injury Report Form will be modified to include all the following details:

- Description of incident (date, time, location, GPS co-ordinates, factual description of the incident)
- Incident type (Environmental impact, non-compliance, potential incident, community complaint)
- Incident classification
- Incident investigation findings
- Actions.

Subcontractors are encouraged to utilise the CONTRACTOR form, where subcontractors have an internal form, they are still required to complete the Incident Injury Report Form to ensure all data required by the Project is captured. All subcontractor environmental incidents are to be reported to the Project Environment Team as soon as practicable after the incident occurs.

The classification, notification and investigation of incidents are conducted in accordance with the CONTRACTOR HSSE Incident Notification, Investigation and Reporting Procedure (CORP-HSE-PR-G-0066). The Procedure applies to all the CONTRACTOR operations and activities including those carried out by subcontractors engaged in activities under the CONTRACTOR operational control.

The CONTRACTOR will provide the OWNER with any incident investigation and supporting data, documentation including contingency and management actions applied to the incident, to ensure the OWNER can adequately report to the applicable regulator.

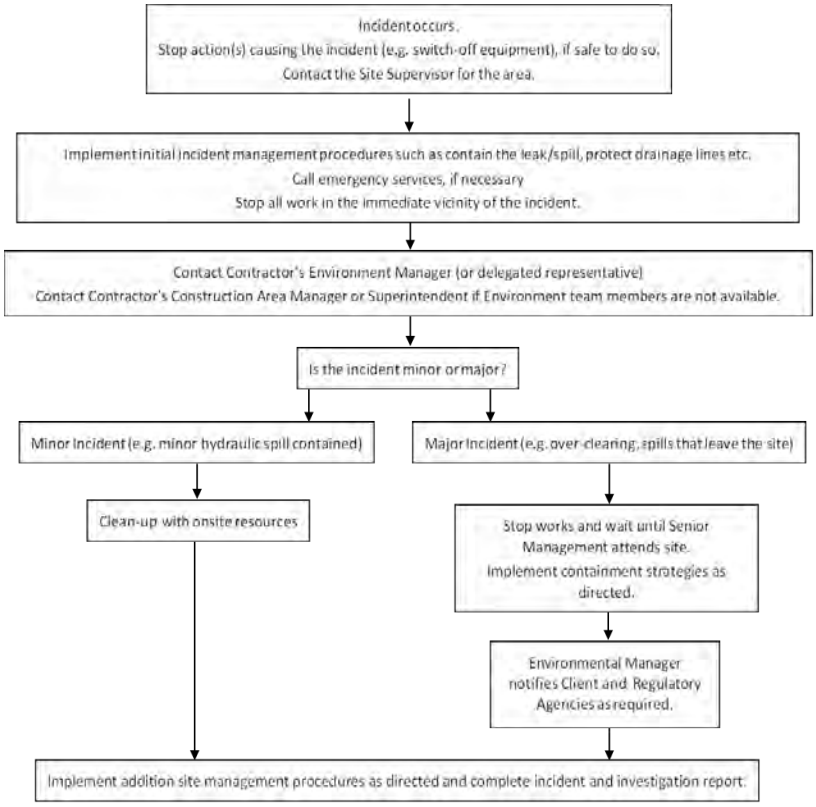


**Figure 11-1 OWNER Incident Notification Process**

## 12 ENVIRONMENTAL AUDIT

Project auditing has been detailed in the CEMP.

## 13 ATTACHMENTS

**Attachment A – Process Wastewater Reticulation**